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IN MEMORIAM: PROFESSOR KRUYT

Professor Dr. H. R. Kruyt, a member of the Board of Governors and of the Executive Committee of our Organization from its foundation in 1952, died on August 31 last.

Large numbers of people accompanied him to his last resting place on September 4, where Mr. Quik and myself represented Nuffic.

Professor Kruyt was a man of national significance. In the first place, as a chemist whose brilliant talents won general recognition at home and also abroad. In the second place, as the teacher of several generations of students. At the cemetery Westerveld, one of his former pupils, now a professor himself, gave expression in deeply moving words to his gratitude for what the deceased had meant to him as a teacher.

But Professor Kruyt was a man of far wider interests than those whose custom it is to confine themselves to their own field. His was a universal spirit whose words bore authority in many fields and in many circles here in the Netherlands.

Naturally, we in Nuffic mourn him as a governor of our organization, in which he occupied a unique place. He was, I re-emphasize, a man of great authority, to whom we gladly listened and whose advice was distinguished by great knowledge and great wisdom. We were proud to have him in our midst and we can hardly realize the fact that in future that familiar, well-known figure will no longer be present at our gatherings.

He was with Nuffic during its first, difficult years and he it was who always encouraged us to carry on, despite the many setbacks we encountered in those early days. He was a constructive critic 'par excellence'. His opinion was sometimes exceedingly sharp, but the form in which he couched it alwas struck us by its great gentleness – a thing we shall continue to remember with deep gratitude.

A great man, a clever man and a wise man. We shall miss him dearly in our circle.

A. L. DE BLOCK

THE WORK OF PROFESSOR ZERNIKE

In our present era, in which physical research is booking such spectacular successes in the domain of nuclear physics, the work done in other parts of this branch of science is being pushed more or less into the background. When Dr. F. Zernike of the Netherlands, professor at the University of Groningen, was awarded the Nobel Prize for Physics in 1953, this scientist, whose work lies specifically in the field of classical physics, was a relatively unknown figure, not only to most laymen but even to many of his colleagues. Only "insiders" knew that a research worker of genius was upholding the glory of his profession in the north of the Netherlands. It was only after the Second World War, when the phase contrast microscope he invented in 1932 proved to be of tremendous significance to biology and medicine, that public attention was first focused upon him.

Professor Zernike was born in Amsterdam in 1888. He studied chemistry at the Municipal University of Amsterdam, devoting himself simultaneously to the study of mathematics and physics. As an undergraduate he won a competition on the winning chances in the clock and hammer game, demonstrating then and there that he was perfecty at home in probability calculus. He graduated in 1915 on a thesis entiled: "L'Opalescence critique, théorie et expériments", dealing with the theoretical and experimental aspects of opalescence in the vicinity of the point of dissolution of two liquids.

This dissertation, with its theoretical as well as experimental strain, was to prove typical of the scientist of later years. Professor Zernike, in fact, is the fortunate possessor of a rare scientific disposition, uniting great mathematical talent to pronounced technical aptitude and exceptional experimental skill. Many a theoretical and many an experimental scientist can well envy him any one of these personal qualities. Whenever Professor Zernike needs some instrument or material for an experimental test which the industry is either unable to supply or to manufacture exactly according to his specifications, he makes it himself. One of his pupils, Professor Nijboer at Utrecht, has said of him: "Professor Zernike is as much at home in the difficult theory of the great canonical ensembles of statistical mechanics as he is in the theory on the interference of light; he handles Watson's famous book on the Bessels functions with the same virtuosity as he does a lathe or a milling machine in the laboratory workshop; he demonstrates the most astonishing interference experiments effortlessly and builds highly serviceable ultracentrifuges with the aid of vacuum cleaner engines."

Even before he graduated Zernike, the chemist, was appointed assistant to the famous astronomer J. C. Kapteyn in Groningen. But his labours in the field of astronomy were to be of short duration for in Groningen he met Dr. L. S. Ornstein, a lecturer in theoretical physics. It was the meeting with this scientist, who became a professor at Utrecht a few years later, which was to lead Zernike in the direction of theoretical physics. Various publications, most of which appeared in the Reports of the Royal Netherlands Academy of Sciences, bear testimony to this fruitful collaboration with Ornstein. When the latter went to Utrecht, Zernike succeeded him as lecturer in Groningen, subsequently being appointed as a professor at the University in 1920.

In his work in the field of theoretical physics, Zernike concentrated at first especially on statistical mechanics, that is, the mechanics of the systems of a great many particles. He wrote an important chapter on this subject for the third volume of the well-known *Handbuch der Physik* by Geiger and Scheel, entiled: "Wahrscheinlichkeitsrechnung und Mathematische Statistik" (1928). His well-known investigations together with J. A. Prins, currently professor at Delft, on the dispersion of X-rays by liquids date from the same period, as does a significant improvement of the rotating coil galvanometer, the sensitive parts of which he again made himself.

During the last two decades it was optical phenomena especially that held his interest. Despite his considerable mathematical talent Zernike occupied himself curiously little with the quantum theory, which is still the daily mental food of virtually all present-day theorists. Obviously Zernike has a love of classical physics, a field considered more or less "over and done with" by modern theorists. However, through his work Zernike has shown that there are still important things to be done in classical physics. In order to make valuable new discoveries in this field one must indeed have a great originality and a highly critical turn of mind at one's command. His preference goes out specifically to physical optics, as is evident from the brilliant research he has done on the concepts of coherence-background and coherence-degree, and on the diffraction theory of image defects in optics.

Zernike's major discovery in this classical field of optics was his so-called phase contrast method for microscopic research, for which he was awarded the Nobel Prize. He first referred to his invention in a concise statement under the simple title of "A New Method of Microscopic Observation" at the Netherlands Physical and Medical Congress, held in Wageningen in 1933. A number of smaller publications in domestic and foreign journals followed, and it was not until 1942 that he wrote an expanded study on the subject in the journal "Physica" (Phase Contrast, a New Method for the Microscopic Observation of Transparent Objects, Physica, Volume 9 (1942), 686, 974). Professor Zernike, in fact, has never been in a hurry to give publicity to his findings.

This phase contrast method has become of immense value to biological and medical research work. In examining a living object, a living cell for example, in an ordinary microscope, it is virtually impossible to distinguish the various details therein because the particles from which the cell is built up are all transparent and all contrast is lacking. Prior to Zernike's invention practically the only possibility was to treat objects with pigments, whereby the various components become coloured – a process which generally kills or at least damages the organism to be examined. The method of dark field illumination was also known, but this did not give a precise picture of the object involved. However, with the phase contrast method it is now possible to observe wholly transparent living organisms distinctly and even to film the life processes of unicellular beings. An excellent film was made by this method at the Zeiss works at the time, on the mitosis of unicellular organisms, whereby the cell dividing process was made visible for the first time.

The phase contrast method is based essentially on the wave character of light. Zernike's point of departure was the diffraction theory on the nature of image formation in a microscope, established by the German physicist Ernst Abbe in 1873. Abbe demonstrated that the representation of objects which emit no light themselves, is effected through the medium of a microscope in an entirely different manner than that of luminous objects. He thereby proceeded from a frequent circumstance in microscapy, *viz.*, the image formation of a regular grating structure consisting of a large number of parallel dark lines located at very short distances from each other. Such structures are encountered *inter alia* in the scales of butterfly wings, in diatoms and in fibres. Abbe went on to show that when such a grating is illuminated by a parallel bundle of rays emanating from a narrow slit, in the back focal plane thereof, through a positive lens (objective), a series of diffraction images of the slit (the so-called primary image) is formed. These diffraction images must then be considered as so many light sources which together form the final image of the grating in the plane of the image. Each one of these diffraction image-light sources in itself would cause an even illumination of the plane of the image. Since the bundles originating from the various diffraction image-light sources interfere with one another in the plane of the image, they therefore form an image of the object which corresponds according to amplitude and phase with the light let through by the object (the so-called secondary image).

Proceeding from Abbe's train of thought. Zernike then examined the case where the object involved is not a grating of transparent and dark stripes, but a grating of thick and thin layers located at regular distances from each other, of an entirely transparent material – a glass plate for instance in which a number of shallow grooves have been etched. Here, too, a diffraction image is formed in the back focal plane of the lens and an interference image in the image plane, which corresponds, according to amplitude and phase, with the illuminated object. However, the plane of the image is now evenly illuminated; the eye is not susceptible to the differences in phase appearing therein. The direct central image of the light source actually differs 90 degrees in phase from the diffraction images. By artificially slowing down the central diffraction image 90 degrees in phase, precisely the same situation arises as with Abbe's grating. This means that one can then just as easily make a black and white picture of the transparent grating. This artificial phase change can be obtained by introducing into the back focal plane of the objective a glass plate, for example, with a very small hollow in the place of the central spot, in such a way that the phase of the latter is modified 90 degrees. Zernike has called the transparent grating a phase grating, in contrast to the amplitude grating examined by Abbe.

This consideration can be directly transferred to the imaging of transparent objects such as those occurring in practice, that is to say, of transparent objects the various components of which display slight differences in refraction index. By this means the light emanating from the light source undergoes phase delays in the object that vary from place to place. The observation of transparent living objects has consequently benefited greatly by the phase contrast method – as Zernike himself has called it. As soon as his discovery became generally know after the war, opticians all over the world elaborated the method further. Professor Zernike was obliged at first to construct his phase contrast microscopes himself. It was not until much later that he succeeded in arousing the interest of the optical industry in his invention, so that it was 1941 before the Zeiss works put the first samples on the market. Although Professor Zernike resigned from the University in 1958 upon reaching the age of 70, his scientific work is continuing without interruption.

A. N. Borghouts *

(Translation by Flora H. van Os—Gammon).

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* Mr. Borghouts is a member of the academic staff of the Department of Physics in the Technological University at Delft.

MELCHIOR TREUB, A PIONEER OF NATURAL SCIENCE RESEARCH IN THE TROPICS

In 1951 the hundredth anniversary of the birth of Professor Dr. Melchior Treub was commemorated in the Royal Tropical Institute, Amsterdam. On this occasion Dr. H. H. Zeijlstra, one of Treub's few assistants still alive today, delivered an address on his life and work, which has since been elaborated to become a complete biography in English, recently published with financial assistance from the Society for Scientific Research in the Tropics (the Treub Society) and the Prince Bernhard fund. This biography has provided the inspiration and most of the material for the brief sketch printed in the following pages.*

For the former Netherlands East Indies, the period between the economic crisis of the eighteen-eighties and the beginning of the second world war was one of remarkable development. Many foreigners held up the welfare policy pursued in these fifty years of the "Pax Neerlandica" as an example to other countries. In the field of large-scale agriculture, the cultivation of export crops, old and new, such as sugar, hevea rubber, tobacco, quinine, coffee, tea, palm oil etc., underwent an enormous expansion. Powerfully aided by liberal agrarian legislation from 1870 on, by efficient systems of irrigation (on which 270 million guilders were spent between 1900 and 1940) and, last but not least, by expert advice, the smallholdings (native farms) also made great strides ahead, strides highly necessary in view of the marked rise in population. Thus, within this period the irrigated area used for the cultivation of rice in Java was improved and increased by about 1.6 million acres (roughly 25 %), while towards the end of the period native farming was providing 48 % of the rubber produced in Indonesia, 58 % of the coffee and 99 % of the pepper. At the same time the Forestry Service was paying out about 8 million guilders a yaer in wages. Countless further examples of expansion could be mentioned too.

Research in the field of natural science did much to promote Indonesia's economic development, particularly research on behalf of public health (research, for instance, on the combating of plague, beri-beri and malaria), research in the field of applied geology (the winning of oil etc.) and research on the cultivation of crops and the processing of tropical agricultural produce in the widest sense of the term. The work done in the Netherlands Indies in the field of biological and agricultural science was characterized by three main features, *viz.*, its international character, the close relation (and, in general, the excellent co-operation) between "science" and "production", and a system of organization which, despite the tendency Dutchmen sometimes show to carry individualism too far, may be termed exemplary.

We find all three features mentioned combined in the figure of Professor Dr. Melchior Treub, who worked from 1880 until 1909 as director of the Government Botanical Gardens ('s Lands Plantentuin) and also as director of the Department of Agriculture set up in 1905 at Buitenzorg (now Bogor) at his instigation, and who played a leading rôle in the developments mentioned above in the Netherlands Indies as a pioneer of tropical research, of international co-operation in science and in the organization of applied science.

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*) H. H. Zeijlstra, Fzn., D. Sc., *Melchior Treub, Pioneer of a New Era in the History of the Malay Archipelago,* Royal Tropical Institute, Amsterdam, 1959. 128 pp. 16 illustrations.

Melchior Treub was born in 1851, the son of Jacobus Petrus Treub, mayor of Voorschoten, and his French-Swiss wife, Maria Louise Cornaz. He was the eldest of three talented and energetic brothers, all of whom occupied leading positions in their own particular fields, the youngest, Willem, as a statesman and minister, Hector, as a gynaecologist and professor, and Melchior as a botanist.

In 1873 Treub took his degree at Leyden University with a dissertation entitled *Investigations into the Nature of Lichens.* One of his propositions was to the effect that: "Should practical requirements be taken into consideration in the study of any branch of science, it will ultimately be discovered that this is detrimental to both science and practical work."

This bold and possibly somewhat exaggerated pronouncement by a 22-year-old who had so far had no experience of "applied science", is almost prophetic, seen in the light of his later work. That his scientist's mind achieved ripeness at an early age is apparent, for the rest, from the fact that he was accorded the honour of being appointed a member of the Royal Academy of Sciences in Amsterdam at the age of 27, when still an assistant at the Botanical Laboratory at Leyden. When he left, a year later, for Java, he had already published twenty odd sound pieces of writing concerning several widely varied fields of botany.

As director of the Government Botanical Gardens at Buitenzorg he earned a world reputation for himself as a research scientist and enjoyed even greater fame as a promoter of the study of tropical plants *in* the tropics themselves. He turned the Botanical Gardens into an international centre, constantly expanding in size and significance. He founded there the first botanical station in the tropics, which was opened to visitors from abroad in 1885. More than 250 biologists from all parts of the world carried out research at this "Foreign Visitors Laboratory" from then on, either under his guidance or at his instigation; or at the new Treub Laboratory in the Botanical Gardens, with its up-to-date equipment, which took the place of the former laboratory in 1914. Another celebrated centre of research was at Chibodas, where in 1891, at an elevation of 4700 ft. above sea level, Treub equipped a small laboratory in the Netherlands Indies' first nature reserve – an area of virgin forest on the slopes of the twin volcano of Gedeh-Pangerango, with its two peaks rising to over 9,715 ft.

Among the Dutch and foreign visitors who worked there for shorter or longer periods one comes across many leading exponents of the biological sciences, too numerous to mention here by name. In 1915 Professor Went Sr. wrote of this "biological paradise" as follows:

"If one has ever attended an international gathering of botanists, be it only once, and the name Chibodas was mentioned at it, one will immediately have heard its praises sung in all the civilized languages of the world. If we weigh carefully everything Treub achieved in the Indies, we shall probably have to admit that the small building at Chibodas was his principal achievement. One thing is sure, and that is that nowadays botany can no longer be practised by taking account merely of the flora of temperate climes."

Visits to Indonesia for study purposes made by Dutch (and now and then foreign) research workers were encouraged by the Buitenzorg Fund, instituted on Treub's initiative by the Royal Academy in 1888. The activities of this Fund even survived the second world war, though not, unfortunately, for long. Treub also managed to collect Buitenzorg Stipends in other countries as well. A growing staff of capable assistants performed research work in the most varied fields of biology. Work went on both in the gradually expanding laboratories, with the herbarium and museum, and in the field and jungle, while Treub organized expeditions throughout the archipelago. By the beginning of the present century the Government Botanical Gardens had completely outgrown their name. In 1899 Treub himself wrote: "What was formerly the Government Botanical Gardens is now, under the name of the "Botanical Garden and Mountain Garden" one of the ten departments of a large Botanical-Agronomical Institute . . . to which no less than twenty-two persons with special scientific or technichal training are attached among its staff of twenty-eight Europeans . . . possessing eight different laboratories and publishing six periodicals (three of an academic nature and three concerned with practical work) . . .

This side of Treub's work achieved general recognition in scientific circles by means of his international contacts and by many dissertations published in the abovementioned periodicals or elsewhere.

There was, however, another side to his activities, which acquired even greater significance, if that were possible, but of which less is known, especially abroad, since far less has been published about it. Most of the data concerning it lie stored up in official and private Dutch archives, or in the memory of Treub's contemporaries, of whom only a few are still alive. This was his organization of research and information on behalf of agriculture and forestry, which owe their later and highly spectacular development in all manner of directions largely to this work of his. Young Treub had left for Indonesia with but limited enthusiasm, intending to stay there a short time only. He had no experience as an agricultural expert and seemed cut out for a European chair in botany. But once he had arrived in Buitenzorg, he immediately discerned another calling and in addition to his academic work developed a great interest in, and a keen insight into, the requirements of tropical agriculture and economy, and also a unique ability for organization. In 1898 he was approached and asked to accept a chair at Leyden but he turned the offer down. Like so many other European investigators of nature he had become fascinated by the "call of the East".

It was Treub's conviction that in "applied science" the scientific validity of the work done was the cardinal factor. Quality should not be jeopardized by striving to achieve short-term results. This was the main reason why he originally concentrated all the work done for practical use in Buitenzorg under his personal, daily supervision, just as he had done in the case of "pure" research. The first research done on behalf of new crops, such as gutta-percha and quinine, was performed here, as also was the systematic classification of the forest trees of Java, since become famous and completed only after twenty years' work. Separate laboratories were equipped to carry out special research on the diverse crops and specialists were appointed for the purpose – a botanist, who studied the diseases of crops of economic significance and the combating of such diseases, and a chemist, whose task it was to study the methods of processing agricultural products. At the same time vegetable medicines were investigated in a pharmacological laboratory. An agricultural zoologist was also appointed to study the enemies of the crops in the animal world. He was Treub's friend, Dr. J. C. Koningsberger, later Minister of the Colonies.

In those days it was customary to place more trust in "practical experience" than in the advice of "scholars". This was due partly to the fact that in the beginning such investigators were still sometimes lacking in "practical insight" and in a knowledge of local deviations from "theory". Thus it must be admitted that the first experimental fields for rice cultivation laid out in 1900 were a failure. But a change soon came about in this state of affairs, thanks to Treub's perseverance and to his assistants' growing understanding of local practical requirements. Indeed, so large was the increase in the requests for advice coming both from the large plantations and from the smallholders that the staff, equipment and financial resources proved insufficient to deal with them all.

The research done on behalf of the smallholders (native farmers) had still to be paid for by the government. It remained concentrated in Buitenzorg and was destined to expand later on and to become the "General Experimental Station for Agriculture", founded by Treub's successor in 1918, with its various institutes, some of which Treub himself had set up – for instance, the Agro-Geological and Soil Research Laboratory. The large plantations eventually began to pay for the research specially performed on their behalf themselves, but this work, too, was done at Buitenzorg in the beginning, or by assistants working under Treub's guidance but temporarily seconded for work elsewhere. Thus laboratories were set up in Buitenzorg (where there were no tobacco plantations locally) for research on Deli tobacco and for tobacco grown in the Principalities, independent experimental stations for these undertakings only taking their place at a later date, in the areas concerned (1906: Medan-Deli and 1912: Klaten, Central Java). The same course was followed in coffee and cocoa research, while the experimental station for tea, set up at Buitenzorg in 1901, remained there even after it had acquired independent status, since Buitenzorg continued to be a suitable headquarters for the purpose in view of the geographical situation of the plantations concerned in West Java.

Although the first research work done for the large sugar plantations was performed at Buitenzorg, and by Treub personally (research into the notorious "serch" disease which was one of the causes of the sugar crisis in 1883), the experimental stations for sugar were, unlike most others, independent from the very beginning from the government and situated in centres of sugar-cane cultivation. They were amalgamated later on into the great "Experimental Station for the Javanese Sugar Industry" at Pasuruan in East Java, that was to acquire a world-wide reputation. These independent research stations situated in other regions also maintained close and constant contact with Buitenzorg.

Treub's endeavours to centralize research and information achieved a monumental triumph in 1905, when an independent Department of Agriculture was set up under his direction.

This was the result of his perseverance and organizing ability and also of his ability to find his way and to exercise great personal influence not only in academic but also in the official government circles of the time, where relations were delicate and complicated. The Botanical Gardens, with their different sections described above, formed part of this new Department, for which Treub had taken the "United States Department of Agriculture" at Washington as his model, while it also embraced all government institutes in the field of agricultural education, agricultural research and agricultural advice and information *inter alia*.

It is understandable that Treub's wish to have the research work done on behalf of all the plantations in the Indies concentrated entirely at Buitenzorg should not have been fulfilled. But in the initial stages this wish was equally understandable in view of the great distances separating the various plantations and the difficult communications – and particularly in view of such accessories as the library and laboratories, excellent for their day, which at the time were only available at Buitenzorg – and, finally, in view of the limited number of experts available, who needed guidance from Treub personally. As the years passed, communications improved, more money became available, the numbers of young research workers constantly increased and specialization went further and further. The natural result of these trends was the decentralization of agricultural research, performed by specialized, independent experimental stations lying in various parts of the country.

Thus, whereas Treub's idea of centralization was later largely abandoned, and not without justification – by about 1930 roughly 80 % of the research was being done by private organizations – it is certain that he was the founder of research, and of the information and advisory service, on behalf of native agriculture and, moreover, the man who paved the way for the imposing system of experimental stations founded by the various large plantations and their well-organized co-operation between research and practical work, with its beneficial effect on all concerned.

Professor Melchior Treub had to lay down his tools when his achievements – and the recognition they had won – were at a peak. In 1909, for health reasons, he said farewell to the country where he had worked for 29 years. The elaboration of the material he brought home with him, with the intention of working on it in Europe, had to be left largely to others, for he died the following year in the south of France, at the age of 59.

Treub's work was of the very first importance to the development of pure and applied research in the natural sciences in the tropics. His view as to the international character of these sciences particularly is still a wholly modern outlook – one from which some experimental stations later diverged at times (out of fear of competition in times of economic depression), though only at their own expense and at the expense of the work of research. His vision with regard to "pure" and "applied" science, the interaction between understanding based on scientific knowledge on the one hand and "practical experience" and "planters' feeling" on the other, was of importance to tropical agriculture in general, and wholesome, in particular, for the Indonesian Archipelago and its inhabitants.

Today, as a result of the political situation, Dutch activities in Indonesia have been brought practically to a standstill. Nevertheless, in every region of the world, where men are in any way concerned with tropical agriculture and with technical assistance to "development countries", Treub's example deserves attention. His ideas are still valid for everyone who believes that it is a spirit of humanity and of honest internationalism, unhampered by political, racial, religious or competitive prejudices, that will have to point the way science and its application must take in years to come.

R. Brink *

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THE ORIENTAL NOVEL

At the 16th private congress of the Oriental Society, set up in the Netherlands in 1920, which congress was held at Leyden from September 24 to 26 last, the main subject on the agenda was "The Novel". It was not the novel as it has developed under western influence in various countries of the East that one had in mind, but that traditional prose literature in diverse areas of culture which comes nearest in character to the western idea of the novel. One of the aims was to see to what extent certain literary *genres*, referred to up to the present as novels, for the sake of convenience, really deserved this name. It was naturally impossible to do full justice to all the specialized fields of study represented in the Oriental Society, with its more than 200 members, and it was necessary, therefore, to make as representative a selection as possible.

In order to enable those taking part in the congress to compare phenomena and developments in the areas of culture dealt with with similar phenomena and developments in the West, two specialists in Western literature were called upon to lend their cooperation.

The Egyptian Novel. The congress opened with an address by the late Professor de Buck of Leyden, who began by giving an inventory of narrative prose in ancient Egyptian literature, based on Gaston Lefebvre's classification. Foremost in the comparatively small collection mentioned by him is the story of Sinuhe, which has the greatest claim to being called a novel, an historical novel that is. It recounts the vicissitudes of a distinguished courtier at the court of King Amenemhet. During the unrest connected with the succession to the throne Sinuhe gets into a state of panic and flees. His roamings take him to Palestine and Syria. There, nostalgia in his heart, he settles for a time and the great deeds he performs in the service of his new master and the success he meets with encourage the hope that his life will take a new turn. He does, in fact, receive an invitation from the Pharaoh and returns to his homeland where, in accordance with Egyption custom his tomb is prepared for him. Particularly striking are the fragments in which the narrative style is interrupted by a solemn hieratic style. Yet even these passages have their function in the artfully contrived story, which, despite its brevity, must be called a novel rather than a short story, since it describes a period in a person's life as an example of the human condition.

The Arabian Novel. Professor Drewes, also of Leyden, began his address with a brief sketch of the rise of the novel in New Arabic literature, which took place in Egypt in the last decennia of the previous century. Since it was not the aim of the congress to deal with Oriental novels which have resulted from European influence, the professor discussed mainly a few books which may be regarded as precursors of the modern novel, such books as Faris al-Shidyaq's (1801–1887) *al-Saq'ala 'l-saq* (a work still belonging to *maqamen* literature) and Muhammed al-Muwailihi's *Hadith 'Isa b. Hisham,* (the latter author died in 1930). He ended up with the culturo-historical novel of Djamil Nakhla b. Mudawwar, the *Hadarat al-islam fi Dar al-Salam* (Cairo, 1888), remarkable for its epistolary form, and the historical novels of Girgi Zaidan (1861–1914).

The Indian Novel. Professor Gonda of Utrecht said that, provided it was understood that European terminology could not properly be applied to the cultural treasures of India, some works, by Dandin, Bana and Subandhu could be called novels. They are lengthy prose narratives of human vicissitudes; there is no definite ending; the possibilities of elaborating on the main theme and of inserting other matter are almost unlimited. The leading characters are kings and princes, the main theme nearly always love. These works have psychological qualities. There is dialogue. The style, mood and attitude to life only become comprehensible if these "novels" are seen as they are meant to be seen, i.e. as Indian *kavya* works, the products of a cultivated literary art, designed for a small public of connoisseurs – word-paintings answering to traditional, wellnigh canonical rules, the beauty and perfection of which could help the listener or reader to perfect his own personality.

The Malayan Novel. Professor Teeuw of Leyden asserted that the predominantly historical study of Malay literature undertaken so far needed to be balanced by a synchronous approach, in which stress would be laid on the stucture of the work and its function in society. He dealt with the *Hikajat Hang Tuah* as an example of a Malayocentric approach of this kind. In contrast to Winstedt's and others' historical and literary-historical study of the text, which had led to its qualification as "an uncritical farrago of legends", the speaker claimed that the work was very evidently a unified composition. From the literary point of view the most important thing was not that Hang Tuah is an historical personage. What mattered was that he was the personification of Malay history, the embodiment of Malaya's destiny. His story is the Malayan myth and, as such, not the story of one human individual's fate. Nevertheless, the form and content of the text provides every reason for regarding the work as a novel.

The Korean Novel. Professor Vos of Leyden stated that the tradidional Korean novel, which was written in Korean and also in Chinese, a language not related to Korean, appears in the period 1600–1900. Prior to this, one does come across stories and "long short-stories" but not novels. After 1900 a new literature emerges, strongly influenced by the West. In order to afford an idea of the characteristics of the traditional novel, the speaker described at length the *Ku'unmong* (The Cloud Dream of the Nine) by Sop'o Kim Manjung (1637–1692) and the anonymous *Ch'unhyang-jon* (The Story of Spring Fragrance), dating from the second half of the 18th century. Whereas the former is concerned with the supernatural and lays the stress on the transitoriness of human existence, a spirit of resistance to the existing social order can be detected in the *Ch'unhyang-jon*. Revolutionary ideas are also to be found in numerous other Korean novels and short stories. The structure and content of the traditional Korean novel certainly entitle it to this name.

The Technique of the Novel. In his address on the technique of the Western novel, Professor Dresden went into question as to how far it is possible to approach the art of the novel from the formal, technical angle. According to this approach, the content of the novel is no longer the first consideration – it is, as it were, absorbed into the investigation of its form, without being lost as a result. In this case it appears that we can definitely still speak of "tension" for instance (with its propulsive and retarding elements), of the intervention of the writer, which only allows of certain methods of solution, of the "end", that never brings a solution and which is no end in the ordinary sense of the word. Thus it is possible to discuss the entire formal composition of an art form which seems to be nothing but "content" without having any fixed pattern.

Final Address. In his final address to the congress, Dr. J. G. Bomhoff, professor of the general science of literature at Leyden, saw the congress as a symptom of “la Renaissance Orientale” mentioned by Marcel Schwob. When thinking of the novel, we in the West are inclined to see it in the “final” form it has assumed in our day. But a different process of growth is to be descerned in other cultures. This makes comparison exciting, but also difficult. One begins to take account on both sides of the inadequacy of terminology and concepts. Making the acquaintance of the Oriental novel, led Professor Bomhoff to a series of observations, of which the chief were as follows:

1. The fairytale character resulting from the occurrence of what we call “miracles”, compared with the rigid exclusion, even of improbability, which is typical of the Western novel. In his opinion the reason for this lies in a different assessment of the economy of means in portraying symbolic truth, which traces back, itself, to a difference in philosophy of life.
2. The boundary line between poetry and poetic form is more fluid in the East, corresponding with a general phenomenon, “le retard général de la prose”, which is ascribed to the fact that the balance between the emotional and rational elements of language has not been lost, as in the West, in favour of reason.
3. In the Oriental view of life, man and his society are more deeply imbedded in cosmic events and the account of a human adventure accordingly acquires a compulsive character as a symbouic truth, which – once expressed – itself functions as an active creative force.
4. Striking, too, is the fact that in the Oriental novel the distinction between good and bad is far more sharply defined than in the Western novel. If the Western viewpoint is the result of psychology and fear of hypocrisy, the Oriental viewpoint can, perhaps, best be seen as founded on a sharper realization of the functional aspect of the human personality.
5. This goes hand in hand with a different assessment of human individuality. There can be no doubt that, for all manner of reasons, the process of growing interest in the “individual” is further advanced in the West than in the East, but the positing of that fact should not blind us to the other fact that we in the West also have novels which portray human beings as types and that every comparison here is not a question of an essential difference but of one of degree.
6. As far as the historical novel is concerned, the discrepancy between historical facts and romantic data can be extraordinarily interesting from the point of view of the history or culture. It should not be forgotten, however, that in the novel history functions as an outline situation in a fictional “reality”. The historical fact can, therefore, throw light on the novel but it cannot refute the novel as such. The novel is to be judged by the criterion of its own inner probability.
7. The fact that the happy ending seems to be more frequent in the Oriental novel than in the Western novel is not necessarily an indication of naïveté. Apart from the fact that the novel has, in theory, no end, what is important here is the underlying, implicit philosophy. Where this, by virtue of its immanent logic — given the development of the story — makes a happy ending inevitable, it is warranted.

In the speaker’s view the effort to interpret the texts with the entire apparatus of linguistic and culturo-historical ideas should not lead Oriental scholars to forget that such work should be subordinate to the aim – which is to make these texts accessible, emotionally and intellectually, to modern man. If they are good, they ought to obtain a place, not only in the historical, national mausolea, but also in the Museum of Humanity whose doors stand wide open to-day.

CHRONICLE

UNIVERSITY NEWS

Rectors' Orations

In the course of September the new university rectors took over from their predecessors. At most Netherlands universities this ceremony marks the commencement of the academic year.

It is customary for the retiring rector's address to review university happenings in the past year and to pay particular attention to special problems and new developments. Not everything in these speeches is of interest, of course, to people abroad, and consequently only the highlights have been mentioned in the following paragraphs.

At *Leyden University* the retiring Rector Magnificus, Professor H. J. Lam, drew attention to changes in the university senate. There were at the moment as many as 192 professors and the senate as a whole had become too large to deal with many of its tasks effectively. Consequently a new form of organization had been sought which has resulted in a board of 12 to 14 members to take the place of the former board of Rectors and Advisers and the former "presidium". The principle of seniority hitherto adopted in choosing the Rector, has been abandoned, while, in future, the Rector Magnificus will, if so desired, remain in office for more than one year, the maximum term being set at five years. The "professor-secretary" will assist the Rector in his function as the university's representative, and the "prosecretary" will be responsible for the actual work of the secretariat.

At *Utrecht University* Professor J. Jongbloed pleaded for the introduction of a university course in physical education. Physical education, the retiring rector averred, was a positive factor in public health, since it benefited the bodily and mental wellbeing of the entire nation, if property taught, in proper measure, and with the proper organization. If the university, with its pedagogical, sociological, psychological and medical institutes, were to include physical education in its curricula this would guarantee scientific research into the principles of the subject, which would then acquire the place it deserves in our present-day society.

Professor Jongbloed wanted to see the university as a "living concern", with an annual turnover of 25 million guilders, a concern that called for long-term investment, a living organism, that was expanding at an alarming rate, but which threatened to be hampered by lack of space. In dentistry, for instance, it had proved necessary to set a maximum to the number of students admitted, an unprecedented measure in higher education in the Netherlands.

At the *University of Groningen,* the retiring Rector, Professor H. J. Scheltema, gave an historical survey of "first-year student" customs and the initiation of freshmen at the universities of the Roman Empire. He expressed the hope that at some future date a technical faculty would be added to the existing faculties at the university. In his view, the University of Groningen could accommodate far more students than at present. He opposed insufficiently well-founded plans for the spread of higher education by the establishment of new institutions of learning, which plans ignore the problem of how the requisite teachers are to be found. He felt that advancing specialization pointed far more in the direction of the expansion of existing universities.

At the *University of Amsterdam* the expansion of the university and new buildings formed one of the highlights in the speech of the retiring Rector, Professor Woerdeman, who had been six years in office. In 1959 and 1960 5 million and 13.5 million guilders respectively were to be spent on this expansion. Mention should also be made of the preparations for setting up a Europe Institute where the necessary reference material would be available, particularly for the use of teachers in the law and economics faculties.

The retiring Rector of the *Free (Reformed) University of Amsterdam,* Professor G. C. Berkhouwer, went at length in his address into the general education of the student. The university senate had decided not to transform the existing programme of interfaculty lectures into an expanded form of *studium generale,* taking into account the fact that in view of the extension of study in various directions it was necessary to limit oneself to subjects in which there was real interest. Methods for the student's general education would be studied. It was clear, said Professor Berkouwer, that in view of the complicated concepts of "general" and "cultural" education, careful consideration would be required if anything worthwhile was to be achieved.

Professor G. W. Groenendaal, handing over office to Professor L. G. A. Schlichting at the *Roman Catholic University at Nijmegen,* drew attention to the ever more evident bonds between the university and society and between the university and the government authorities. Whereas in the past "the search for truth" meant a "withdrawal from society", social developments now called for new branches of study, made study more pragmatic, and broadened the stream of students. It would be mere chance if the rising demand for academically trained persons were always to correspond with the supply. Professor Groenendaal therefore considered continual prognoses essential.

The growth in the size of the student population was threatening to destroy the university's social unity. Many students have practically no share in an academic education. The relationship between the teacher and the student was threatening to devaluate to a certain transfer of knowledge and skill at a low price. Higher education will be faced with an exacting trial of strength if the university wishes to continue to perform its double function: academic and scientific research *and* specialized higher education. At the *Technological University at Delft,* Professor O. Bottema handed over to Professor R. Kronig, after a nine-year term of office as Rector Magnificus. Professor Bottema pointed out the enormous problems with which higher education confronts the government. Existing universities justly demand extensions; new universities are asking for consolidation, while at the same time the cry has gone up for the spread of higher education over more centres of learning.

There has been a great deal of thinking in Delft regarding the manner in which an institution of higher education should be administered in our day. Good administration must achieve a balance between authority and freedom, make responsibilities clear, encourage resolution, ask for information and advice and be prepared and able to account for its policy and management. At Delft the Curators and the Senate work together in a way which, in the speaker's view, was wholly reasonable.

At the *Agricultural University at Wageningen* Professor A. W. de Jong said in his address that although a great deal had been achieved since 1945 as far as the building programme was concerned, there were still big arrears. However, a number of large laboratories would soon be ready for use. The supply of teaching staff, on the other hand, was not keeping pace with the higher demands made in teaching and research and this had a braking effect on the university's development.

The departing Rector Magnificus at the *Netherlands School of Economics* in Rotterdam, Professor H. W. Lambers, recalled the introduction of two new subjects, "Regional and Socio-economic Research" and "Harbour Economics". However valuable these new additions might be, it remained a fact that new subjects result in still further specialization in study for the degree of doctor and increase the length of this course of study.

At the moment the course of study lasts on the average, for 7 years (one year propaedeutic study, two years for the "candidaats" examination and almost four years for the doctorate). The senate has now taken a number of measures designed to shorten the length of this study. The timetable of lectures and the literature list for the propaedeutic and "candidaats" examinations have been curtailed and regulations for the "doctoral" examination simplified. "Practical exercise" lectures have also been introduced to make the subject matter more readily accessible to the student. A number of these lectures will be organized in the evenings also, for the benefit of the many employed students, who form a considerable group at Rotterdam: in recent times, 78 of those studying for their doctor's degree were employed, 38 of them during the whole course of study.

At the *Roman Catholic School of Economics at Tilburg,* the retiring Rector Magnificus, Professor F. J. H. M. van der Ven, stated that the practice of science at this university was making good progress, particularly thanks to the activity of the Economic-Sociological Institute and the Labour Problems Institute. The increasing number of students necessitates special measures and a beginning has accordingly been made with the construction of a new university building.

At the *Technological University at Eindhoven* the Rector Magnificus, Professor H. B. Dorgelo, who was re-appointed for a further 3-year term of office, took as the slogan for his address the words: "A Nation that is Alive Builds for its Future", laying the stress on the need for new buildings and the procuring of new equipment. Professor Dorgelo put forward five propositions:

1. The carrying out of scientific research is a task laid upon the technical universities by the law.

2. In addition to this, contact with others working in the same field was necessary.

3. One can only take part in international scientific exchange if one has first achieved something worthwhile oneself.

4. The procuring of equipment is not the first step. The first step is to pose a scientific problem. The procuring of the equipment needed to solve this problem must ensue from this.

5. The professor ought to have the necessary equipment available for giving instruction in his particular subject and for performing "frontline" work.

The university senate had made proposals to the Minister for the introduction of the following new courses:

1) for physical engineers, mathematical engineers and industrial engineers.

2) for "doctoraal" examinations in mathematics, physics and chemistry.

3) for the bachelor's examination in one or more departments.

The courses would promote a lively interchange among the various fields of technical science, fundamental science and social science, the professor said. The course for industrial engineers will meet a need which is becoming more and more pressing in present-day society and industrial life.

RESEARCH

The Development of Physics Research in the Netherlands

As a result of a petition by the deans of the mathematics and physics faculties of the Netherlands universities, and the grave concern expressed by the Royal Netherlands Academy of Sciences with respect to the lag in development in the field of the physical sciences, the Minister of Education, Arts and Sciences appointed a Commission on the Development of Physics Research on December 2, 1957. *

Following its establishment, the commission was charged with the task of investigating the state of physical sciences in this country, and of recommending a comprehensive set of measures which will enable the universities in particular to meet the requirements set by physics research at the present time.

The report submitted by the commission to the Minister of Education, Arts and Sciences has meanwhile been presented by the latter to the States General. A summary follows below.

The commission concluded from its investigations that serious shortcomings exist in Netherlands universities with respect to the development of the natural sciences. It put forward a number of proposals in its report with a view to improving the present state of affairs. It specifically stressed its concern about the fact that, compared to fifty years ago, there has been a relative decline in the Netherlands' contribution to pioneering fundamental research work, and that, especially in comparison with some of the neighbouring countries, this decline is beyond dispute. As this lag occurred despite an appreciable increase in the number of scientific workers, the commission is of the opinion that attention should be focused primarily on the creation of a favourable climate for original research.

Physics research is a necessity. Man's technical ability has increased more rapidly in the last century than at any other period of history, and this growth continues. The forms our culture takes change according to the material potentials: we find

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*) The commission was officially installed on December 11, 1957. It was composed as follows:
Chairman: Prof. H. B. G. Casimer, director of the physics laboratory and member of the board of N.V. Philips at Eindhoven, and professor extraordinary of physics at Leyden.
Members: Prof. W. H. Arisz, professor of plant physiology at Groningen; Prof. C. J. Gorter, professor of physics at Leyden and vice-chairman of the Royal Netherlands Academy of Sciences; Prof. J. H. Oort, professor of astronomy at Leyden; Prof. J. Th. Slotboom, research co-ordinator of N.V. Bataafse Internationale Petroleum Maatschappij at The Hague.
Secretary: Dr. P. Winkel, scientific advisor with N.V. Philips at Eindhoven.

ourselves in the midst of a general revolution. Characteristic of this technical development is a combination of thinking in physics with an urge to achieve things and a spirit of enterprise. Modern industry without the physical sciences is as unthinkable as contemporary physical sciences without the support of technology. Technology, applied research and fundamental research are so closely interwoven that well-balanced attendance to all three aspects is an indispensable condition for fruitful development. In a country such as ours, which, owing to a shortage of raw materials, depends on intellect and industries employing large numbers of workers, research demands special attention.

The commission considers the universtity the most suitable place for physics research. This research is conversely an essential part of higher education in natural science. The object of this education is to train people who are able to solve problems independently an object that is attainable in one way only, viz. by encouraging students to participate in original work under the guidance of capable teachers. Naturally these efforts must be matched and partially preceded by a certain amount of formal theoretical and practical instruction. College lectures and practical tests are, indeed, indispensable, as we must raise the student as quickly as possible to a level where independent work can be performed. In its report the commission occasionally makes a distinction between instruction and research, and considers instruction the formal part of the training.The question to what extent society is in need of graduates who have followed only this formal part of the training and who, in the commission's opinion, therefore have not enjoyed higher education in the true sense of the word, is not discussed in the report, as it was felt to lie outside the scope of the commission's terms of reference.

The commission made an estimate of the number of people who are engaged in the physics sciences, and it was found that at the universities the number of such practitioners shows the anticipated increase. Nevertheless, it should be taken into account that the expansion since the war has not been great enough to enable the Netherlands to maintain its former important position in the field of fundamental research. A further expansion is therefore required, as well as an improvement in the material conditions and the intellectual climate.

Lack of space is a difficulty with which practically all university institutes are faced. Broadly speaking, the minimum floor space required per scientific research worker is estimated at a net average of 25 m^2.

Laboratories for university research work will have to be built at a rate approximately ten times the rate of construction during the period 1954 up to and including 1958. This average covers all universities and those branches within the mathematics and physics faculty, excluding mathematics, which were considered by the commission. Furthermore, the estimate relates solely to the space required for scientific research. Assuming that the floor space now in use is to be increased by 10,000 m^2 net per annum at a building cost of f 1,500 per net m^2 of finished space, the entire building programme would involve a sum of *circa* f 15,000,000 per annum.

The material credits must be substantially raised. In experimental physics and chemistry, for example, a sum of f 4,000 per research worker and per annum is deemed desirable. In addition, funds must be reserved for large scientific projects.

Whilst *the number of scientific workers* at the universities shows the anticipated increase, this by no means applies to the *number of professors.* At Leyden university, for instance, there were 13 professors on the staff of the mathematics and physics faculty in 1931, and now there are 22. It is difficult to find a criterion for the optimum number of professors. Among those who supplied the commission with information, there were a number who believe that every graduate collaborator should acquire the rank of associate professor or assistant professor, because only the position of professor guarantees the necessary mental and material independence to tackle daring and original work. The commission is of the opinion that the number of professors should be tripled within a short time. This would bring the proportion between professors and scientific assistants approximately to the pre-war level. Thereafter the expansion will have to follow that of the number of scientific assistants.

The proposed radical expansion of the number of professors creates an organizational problem in view of the fact that either the existing institutes will have to be split up into more or less autonomous laboratories, or the system whereby a professor is lord and master in his own institute will have to be dispensed with. The commission feels, however, that to continue along the lines followed during the past decades, whereby the number of professors is becoming relatively smaller, will eventually lower university standards in this country. This would mean a devaluation of a much graver nature than the one which would occur as a result of the appointment of a large number of professors within a short space of time, and the restriction of a professor's power of decision as such. Furthermore, the commission considers it greatly preferable that the various professors should work alongside each other in one institute which forms an organic and administrative whole, than that the institutes should be divided into a number of smaller departments. An increase in the number of professors must not lead to an increase in the number of institutes. The situation whereby one professor works in one and the same institute will eventually have to be accepted. If, in accordance with the commission's proposal, the number of professors is to be extended, *this must on no account lead to an intensification of the programme of study.* These professors could, of course, give some courses of lectures, but these would have to consist partly of optional subjects. Any exaggeration of the formal requirements for examinations would merely do harm to university training. The subject matter will have to be chosen in such a way that students take their candidate examinaton within a period of three years at the most. Normally, the doctoral examination will also have to be taken within three years.

Although *the position of academic officer* is not an unsatisfactory one for young people, it gives little satisfaction as a permanent post. Besides an increase in the number of professorships as a better perspective, and a rise in the final salary, the commission would like to see only those people remain attached to a university after the age of 30 or 32 for whom a reasonable university career is foreshadowed.

This will only be possible, however, if they are eligible for a scientific post at a comparatively early age In this connection the commission, in addition to a curtailment of the period of study, recommends the institution at every university of a limited number of '*M-assistantships*'. Those who are to be appointed 'M-assistant' would have to be exempt from military service, and it is suggested that conscript candidates for a doctor's degree, who fulfil a number of special requirements set down in the report, be considered for these posts.

The commission is of the opinion that *the decentralization of higher education,* such as is currently advocated from all sides, would be detrimental to the development of physics research, and particularly to research work on the highest level. Since the most disquieting aspect of the pursuit of science in the Netherlands is a retrogression of front-line pioneering work, and the commission considers the advancement thereof as one of the most pressing matters, it expressly warns against the cleavage that the establishment of new physical faculties would necessarily entail. In most fields of modern science smaller institutes mean a squandering of resources and intellect. Instead of this, the commission advocates the amalgamation of the existing institutes. Research forms the most essential part of higher education, and if the former languishes the latter cannot be satisfactory either.

As regards *the recruitment of intellectuals from all strata of society,* the commission's comment that the relatively long duration of study in the natural sciences — a study for which the interest of a large number of students is particularly necessary at the present moment — undoubtedly has a deterring effect, and this not only on those with limited financial resources. The extension of the number of interest-free loans and scholarships for these subjects could well be accelerated. Furthermore, the commission recommends that all students who spend much of their time doing scientific research work be awarded an assistantship. In most cases they will then be in a position to support themselves soon after their 'candidate' examination. This automatically-acquired assistantship would have to come to an end as soon as the doctoral examination is taken.

The commission also devotes attention to the *subjects of university research,* and points out that there are various fields of science at present which can no longer be classified in one of the formerly common categories, but contain elements belonging to two or more of these categories. The commission believes that these marginal fields deserve special attention in view of the fact that they continually offer unprecedented opportunities. It stresses the transitional stage between chemistry and physics, and to an even stronger extent the intermediate stages between biology, physics and chemistry. An appendix on biology and its related subjects is attached to the report.

Pure Research in Agriculture

In October 1959 the Minister of Agriculture and Fisheries appointed a commission whose terms of reference are to make recommendations for the further development of pure research in agriculture. The chairman of the commission is Dr. V. J. Koningsberger, professor of botany in the University of Utrecht.

This step has been prompted by the consideration that natural science research is advancing rapidly, from which consequences must be drawn as regards pure research, particularly for the Agricultural University at Wageningen, in order to keep abreast with the requirements of our day.

The commission's task with regard to pure research in agriculture runs parallel to that of the Commission on the Development of Scientific Research under Professor Dr. H. B. G. Casimir's chairmanship, appointed in December 1957 for the benefit of the mathematics and natural science faculties.

The members of the Koningsberger Commission are as follows: Dr. E. W. Hofstee, professor of empirical sociology and sociography at the Agricultural University at Wageningen; Professor H. W. Lambers, professor of general economic theory and business undertakings at the Netherlands School of Economics, Rotterdam; Professor H. Veldstra, professor of biochemistry in the University of Leyden; and Dr. Ir. S. J. Wellensiek, professor of horticulture at the Agricultural University at Wageningen. Dr. Ir. C. H. Bolt, lecturer in agricultural chemistry at the Agricultural University, is the secretary.

Netherlands Excavations in Rome

The Netherlands Organization for the Advancement of Pure Research (Z.W.O.) has granted a subsidy to two Dutch archaeologists, Dr. C. van Essen and Dr. M. J. Vermaseren, to enable them to publish a book on the results of their excavations in Rome. These excavations have brought to light a Mithra Temple, which was lying underneath the church of Santa Prisca, on the Aventine Hill. Dr. van Essen and Dr. Vermaseren have been engaged on these investigations on and off from 1951 to 1958, in which latter year they were completed. A number of articles have already appeared during this period on these excavations, notably in the journal *Antiquity and Survival,* May 1956 issue. In the publication now in preparation, Dr. van Essen will be dealing with the history of the complex of buildings in which the Mithra Temple was discovered, while Dr. Vermaseren will deal with the theological and historical significance of the Mithra rites. The book, which is to appear in English, will contain 500 pages of text and 200 photographs.

The building unearthed is probably the private palace of the Emperor Trajan (98-117), known as the *Privata Train.* Dr. van Essen has, that is, been able to establish that the building was erected about 95 A.D., on the basis of factory marks found on the bricks. When the temple was being excavated, two layers of paintings were discovered on the side walls. In the older layer, dating from about 100 A.D., lines of painted text have become visible. Their discovery is of great importance, since very little is known concerning the Mithra cult.

INSTITUTIONS

The Netherlands Historical and Archaeological Institute at Istanbul

The Foundation known as the Netherlands Historical and Archaeological Institute in the Near East, was established in 1953 with the main object of fostering the study of the civilizations of countries, past and present, in this area. In the course of the centuries this branch of science has expanded considerably in the Netherlands, and it was thought desirable to have local study centres on the spot.

Jonkheer Dr. F. H. van Kinschot became the institute's president and Dr. A. A. Kampman its hon. secretary, while a number of leading figures, coming mainly from official circles and the business world, accepted seats on the institute's board.

Keeping in mind the possibility of establishing institutes in different Near East countries, the founders resolved to start with a first centre of this kind in Istanbul. There were several reasons for making this choice. In the first place this ancient city of emperors and sultans is exceptionally rich in historical monuments and remains; then, too, her museums contain many items of outstanding historical and archaeological importance and her libraries a wealth of Arabic, Persian and Turkish manuscripts; while in her university the city possesses a well-equipped centre for scientific study. Istanbul is also a stopping-off place for everyone on his way to carry out archaeological research in Anatolia, research in which scholars of many different nationalities participate, thanks to the liberal attitude the Turkish government has adopted in this matter. There was, moreover, a further reason for the choice, one of a very practical nature, which made it easy to come to a quick decision, and this was the fact that the Foreign Minister had declared himself willing to provide the institute with suitable quarters in the city in the former premises of the Netherlands Embassy, situated in what once was the Pera district and is now known as Beyoglu.

The idea of setting up a Netherlands centre of learning here was, indeed, very attractive, for since the days, more than three centuries ago, when the Netherlands representative, Cornelius Haga, chose a dwelling for himself in the vineyards of Pera, our country's ambassadors have continued without interruption to live in this district of the city, and on the spot where in the 18th century the wooden legation buildings (familiar to us from Vanmour's painting) stood, stands the "Palais de Hollande," which remained a Dutch centre after the Embassy itself had been transferred to Ankara in the 'twenties. The upper floor of the main block in this complex of buildings, comprising an official residence, the interpreter's residence (the "dragomanate"), church and consular offices, has now been put at the institute's disposal.

As soon as this decision had been brought to the notice of the board of governors, preparations for the installation of the new centre were taken briskly in hand. At this stage, the present author was invited to go to Istanbul on his way back from a trip he had undertaken to India, to make the final arrangements for the opening of the institute.

In the meantime, the floor put at the institute's disposal had been handed over in excellent condition, thanks to the care taken by the Ministry of Foreign Affairs, and when its installation had reached the stage at which a small beginning could be made with the real work, the institute was able, on March 31, 1958, officially to assume its place in the ranks of institutions of learning active in Turkey. The presence of His Royal Highness the Prince of the Netherlands, who performed the opening ceremony, lent the occasion a special attraction and the institute was grateful for this demonstration of the interest the Royal Family, too, took in this manifestation of Dutch science in Turkey. The Minister of Foreign Affairs was represented by the Ambassador at Ankara, His Excellency, H. Hagenaar, the Minister of Education by Dr. F. P. Th. Rohling. The president and secretary and further His Excellency, the Netherlands Ambassador in Rome, Dr. H. N. Boon, and Jonkheer H. van Lennep, Director of the Royal Netherlands Steampacket Company, were present to represent the institute's board of governors.

The very highest officials of the Turkish government also displayed an interest in the occasion. Among those present were the Prime Minister, the Rt. Honourable Adnan Menderes, the Ministers of Education and Defence, the Governor of Istanbul and many other high functionaries. Turkish academic and cultural life was represented by the rectors of Istanbul University and of the Technical University, many professors, lecturers and directors of museums. The interest shown in the occasion by the institutes of other countries was highly gratifying. International society in Istanbul was represented by Consuls-General and Consuls, by the Netherlands who had assisted in various ways in the work of preparing for this opening ceremony, by the Dutch Consul, Mr. J. van 't Hooft, and by the board of the Netherlands Society.

Both Dutch and Turkish speakers expressed warm wishes for successful co-operation between Turkey and the Netherlands in the field of science, after which, in his official inaugural address, Prince Bernhard recommended the institute to the attention of the Turkish authorities. It may be said that the contacts made during the reception and dinners given in connection with the opening and the cordial atmosphere that prevailed at them proved most advantageous to the institute in the first months of its existence.

The Prince's gesture in accepting the function of curator, thus demonstrating his continued interest in the institute's future development, was highly appreciated.

The institute has at its disposal a large library hall, with an adjoining director's room, and three guest rooms plus a bathroom, for guests wishing to stay in Istanbul for shorter or longer periods for study purposes. The windows of the library and of two of the guest rooms afford a magnificent view over the Bosphorus and the mountains of Anatolia.

The director's private quarters are also situated on the institute floor. He is assisted by a secretary who performs the office work and also manages the library. At the present moment this post is occupied by Mrs. Alkim, wife of one of Istanbul University's leading archaeologists, Dr. Bahadir Alkim, and herself a Turkish archaeologist. Both are advocates of the interests of the Netherlands Institute in the Turkish university and science circles.

The library, which now comprises about 3,000 volumes, the magazines included, will be at the disposal of scholars and students coming to work at Istanbul, while it is also to some extent intended to serve the needs of Turkish users in fields not fully catered for by their own libraries and those of similar foreign institutes. Since the institute seeks to attract not only historians and archaeologists but also students of Islam, Byzantinists. Arabists and Turcologists the library will need to have important handbooks, journals and other publications covering a wide diversity of fields available for the use of such persons. It might be pleasant for Turkish scholars and students to have on opportunity in the institute's library to acquaint themselves with Dutch publications in the history field, especially those dealing with Netherlands relations with Turkey and the Near East, and also with works on Dutch art history. Since most foreigners find difficulty in reading Dutch, the institute will have to lend its assistance to those wishing to consult these books. It is expected that the greatest use of all will be made of Dutch art books, the many illustrations in which make them more readily comprehensible to foreigners. Great assistance has been received from the Ministry of Education in The Hague and the Netherlands Institute for International Cultural Relations at Amsterdam in building up the library, which has also been enriched by gifts made by the Turks.

Dutchmen coming to do research work in Turkey will be able to make use of the contacts built up by the institute with universities, museums, libraries and similar bodies. The institute will also be able to do useful liaison work to get Dutch scientific and academic literature known in Turkey and to supply information on specialist literature on history and archaeology in the Turkish language.

The institute is organizing the publication of a series of monographs dealing with subjects in all the fields it covers, and here, too, the boundaries have been drawn wide. Three publications have been issued so far, others being ready for the printers or already with them, while various authors have promised contributions for the coming years. The editorial and office work connected with this is being performed in the Netherlands under the guidance of Dr. Kampman, the Curator-Secretary.

As far as the exchange of scholars and students is concerned, the institute will be glad to co-operate with the Netherlands and Turkish authorities working in this field.

In the same way as the German Archaelogical Institute in Istanbul organizes lectures and discussions at regular intervals — to which the director of the Netherlands sister organization is always invited — similar facilities will shortly be made available to scholars to give lectures on their subjects to a limited group of colleagues at the Netherlands Institute.

A plan that cannot be carried out immediately but which the board of governors and the director will certainly not lose sight of is for the institute one day to carry out an excavation project of its own, either entirely under Dutch leadership or in co-operation with archaeologists of Turkish or some other foreign nationality. If the institute is to become firmly anchored in Turkish scientific life, it will be necessary to take part in the exploration of cultures which once flourished on Turkish soil.
The Netherlands Historical and Archaeological Institute in Istanbul, outpost of Dutch science in Turkey, from which contacts will be made and bonds forged with other countries of the Near East, will always regard it as a pleasant duty to give assistance and advice to historians and archaeologists, philologists and linguists and, as far as possible, also to research workers whose studies lie in other fields.

A. A. CENSE *

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INTERNATIONAL COURSES

A European Course in Sanitary Engineering

There is a great deal of talk nowadays about a European University. Some people warmly propagate the idea of a central university which would comprise all the classical faculties, while others adopt a sceptical attitude regarding the desirability and the possibility of founding a wholly European University, designed to be the true embodiment of European science and the "Europe" ideology. There are few, however, who doubt the need for, and the possibility of arriving at, European higher education, in the sense of education in European problems, treated in the European spirit, for students from the various countries of Europe, which education certainly need not be the monopoly of an international seat of learning yet to be founded The course in Sanitary Engineering which the Technological University at Delft and the Netherlands Universities Foundation for International Co-operation (NUFFIC) are hoping to launch in October 1960 should be seen in this light, i.e. as a European course of education.

Everywhere in the world the pollution of surface and ground water, the supply of drinking water and the supply of water to industry and agriculture are becoming a problem of increasing importance, displaying certain distinctive features in the densely-populated, highly-industrialized area we know of as Western Europe.

Both the World Health Organization (W.H.O.) and the Organization for European Economic Co-operation (O.E.E.C.) are devoting their attention to this problem, each in its own way, but the carrying out of their plans is hampered by a shortage of experts. Outside the United States there are but few places where postgraduate courses in sanitary engineering are being provided. So far no complete course of this nature is available on the continent of Europe, and if one could be established, it would definitely meet an existing need. It is this consideration that has led to the decision to found a course in sanitary engineering in the Netherlands, which will be closely allied to the already existing international course in hydraulic engineering. This latter course, which was founded some years ago by the Technological University at Delft and NUFFIC has attracted a great deal of attention and has proved a success. In planning the existing course in hydraulic engineering, the point of departure was the fact that this was a subject of which the Netherlands has special knowledge and special experience. The same cannot be said with regard to sanitary engineering. Practical achievements and research in the field are on a reasonably high level in the Netherlands. Institutes exist where important aspects of sanitary engineering are under study, while interesting engineering works are being carried out or have been completed in the field. Important objects of study are provided by the Sanitary Engineering Institute T.N.O., the State Boards for the supply of potable water and for the purification of effluent water, attached to the Netherlands Water Supply undertakings, the various installations for the purification of effluent water and by those for the composting and incineration of household refuse. Nevertheless, it cannot be said that the Netherlands is the country *par excellence* in Europe where knowledge and experience of the subject are to be found. The reasons why it has been decided all the same to hold a European course in Sanitary Engineering in the Netherlands stem from the following considerations:

a) The existence of the international course in hydraulic engineering with the administrative apparatus set up by NUFFIC for this purpose renders it possible to provide facilities for a course in sanitary engineering simply by expanding the existing facilities. Moreover, the Technological University at Delft can supply instructors in the basic subjects of such great importance for this study.

b) The Netherlands is centrally situated among countries such as Germany, Belgium and Gt. Britain, where great attention is paid to sanitary engineering and where many important works in this field are being carried out or are in course of preparation. Significant examples of this are to be found in the German Ruhr and in the industrial area around Liège in Belgium. Excellent co-operation between various bodies and experts in these countries has been established.

The World Health Organization's Europe Office is lending its collaboration in drawing up the programme of the course, in attracting the required instructors and other experts, and in recruiting participants. The O.E.E.C. has declared itself ready to lend financial assistance in carrying out the plan.

This organization will also help to meet the expenses incurred by participants coming from countries which are among its members. The course will be organized on broad foundations. There will be an introduction on the social backgrounds to sanitary engineering. Some idea of the habits of man and some knowledge of the sources of disease are as indispensable to the sanitary engineer as a thorough knowledge of chemistry and microbiology, which forms the basis of the purification of water and effluent water. In addition, hydrology, the science of the natural sources of water, and the use of statistical methods form important items on the programme. The technical subjects, such as the supply of ground water, the purification of effluent water, the sanitary treatment of household refuse and the control of river basins, will be taught by experts from various countries of Europe. In this way the course will also acquire a European character as regards the teaching staff. Laboratory research and the study of problems and installations in different European countries will ensure that the prospective sanitary engineer obtains the requisite practical training. The course is designed in the first place for European engineers with a university education in civil engineering and preferably with some practical experience. Participants from other parts of the world where similar problems are encountered will also be welcome, however. Further arrangements for the organization of the new course will be made in the coming months to enable it to commence in the *autumn* of 1960. It will be of 11 months' duration.

NUFFIC International Summer Course in Science, 1960

Structure and Evolution of the Galactic System

The first of a series of brief annual summer courses at the postgraduate level in the field of the natural sciences is to be organized by NUFFIC, dealing with "Present Problems Concerning the Structure and Evolution of the Galatic System, and is scheduled to be held at Nyenrode Castle near Utrecht, the Netherlands, from August 12 to August 31, 1960.

A considerable amount of fundamental research on the structure and dynamics of the galactic system as well as on evolutionary problems concerning this system has been done in the Netherlands.

An important centre for the research was set up by J. C. Kapteyn in Groningen in the first decades of this century. Meanwhile the subject was vigorously pursued at Leyden too. During the last decade the introduction of radio-astronomical methods has greatly accelerated the progress made. The first comprehensive explorations of the galactic system with the aid of the 21-cm radiation of atomic hydrogen were made in the Netherlands. These explorations are at present being extended at the Dwingeloo Radio Observatory recently established for this purpose.

A Netherlands academic organizing committee has been formed, consisting of professors of astronomy in the universities of Leyden and Groningen, and a number of well-known astronomers from the Netherlands, other European countries and the United States will form an international faculty.

About 40 one-hour lectures will be given, designed to cover the main aspects of the subject and falling chiefly into the following groups: classification of stars, stellar associations, star clusters, stellar evolution; structure and dynamics of the galactic system, the nearest galaxies; radio-astronomy, structure and dynamics of the interstellar medium, hydromagnetic problems. Although the course is primarily designed for advanced students from all countries, applications from young astronomers actively engaged in research will be considered. It is intended to limit the number of participants to about 50.

Tuition fees will not be charged, but each participant will pay 300 Dutch guilders (approx $ 80), to cover the costs of accommodation, meals, service and excursions during the course. The prospectus will be sent upon application to the Registrar, NUFFIC. Closing date for applications: April 1, 1960.

Institute of Social Studies

A New Course in Comprehensive Planning

In September 1960 a new Course in Comprehensive Planning will be commencing at the Institute of Social Studies, The Hague. The course has been organized with the financial support of the Ford Foundation, to meet the demands of the constantly growing interest in the varied field of planning. For effective planning, co-operation and co-ordination are necessary among specialists from widely different fields of planning, such as physical planning, social planning, economic planning, administrative planning and cultural planning. It seems essential to seek ways and means of promoting mutual understanding between these specialists, who have such varied backgrounds.

The course will provide them with a common meeting ground, in a co-operative effort to turn planning into a really comprehensive joint activity. It is open to graduates in physical planning, engineering, architecture, agriculture, public administration, sociology, economics and other academic disciplines related to planning. A certain maturity will be essential for participants and only those who have broad experience in one or other of the fields of planning can be accepted. The number of participants will be limited to twenty, and in the selection process the Institute will aim at achieving appropriate diversity as regards nationality and discipline. 14 Scholarships are available.

The course will last for four months, from September to December 1960, and will provide introductory lectures on the different approaches of the disciplines involved. Further, the course will devote attention to case studies of comprehensive planning, in advanced as well as in under-developed conditions, and also to planning objects of differing scale. During the course the participants will meet in joint sessions and will also work together in smaller teams.

The Course Faculty will be composed of members of the Institute's academic staff, of guest professors and other experts from the Netherlands and from abroad. In February 1960, the Institute will publish a detailed curriculum and other particulars concerning the course.

Applications for participation in the course are invited. They may be submitted up to May 31, 1960, to the Rector, Institute of Social Studies, 27, Molenstraat, The Hague.

2nd International Course in Paedo-Audiology at Groningen University, 1960

A second international course in paedo-audiology will be organized at Groningen State University in autumn 1960. The subject matter to be dealt with is the modern educational treatment of the hearing-handicapped child. In this second course special emphasis will be laid on the so-called home-training of the very young child.

The course is open to speech and hearing therapists, ear specialists, qualified members of the staff of institutes for the deaf and of audiology centres, social workers and students in this field.

The first course in paedo-audiology was held at Groningen University in 1953 and was attended by 136 participants from 21 different countries, among them 60 Dutchmen.

Those interested in participating in the 1960 course are invited to request further information from the University Hospital, Audiology Institute, Groningen, The Netherlands.

The course will be given in the English language.

Summer Course on Dutch and Flemish Art

The Netherlands Institute for the History of Art *(Rijksbureau voor Kunsthistorische Documentatie)* at The Hague is to organize another, eighth, course on Dutch and Flemish Art. Various lectures will be given by art historians from the Dutch museums, universities and the Netherlands Institute mentioned above. Excursions will be organized to enable the participants to view all the great art centres in the Netherlands and also various smaller towns of special interest to them.

The course will run from July 12 to August 1, 1960. The fee will be 350 Dutch guilders (£ 33 or approx. $ 100), covering accommodation, all meals, excursions and lectures. Participation will be open to students of art history, art historians coming from museums and institutes of art and to all who have received an education in the history of art. Knowledge of the English and French language will be required.

A limited number of scholarships will be available. For information please apply to The Director, the Netherlands Institute for the History of Art, 7 Korte Vijverberg, The Hague.

Training Course on Insect and Rodent Control held in Amsterdam, Liverpool and London, August 3-September 1, 1959

This course on Insect and Rodent Control was organized in Amsterdam, Liverpool and London at the request of the World Health Organization's Regional Office for Europe.

The first part was held from August 3 to August 14 at the Tropical Hygiene and Geographical Pathology Institute, which forms part of the Royal Tropical Institute in Amsterdam.

The course was attended by ten W.H.O. fellows, coming from Greece, Spain, Turkey and Yugoslavia, all of whom are employed in public health services in their home countries. The lectures and demonstrations in Amsterdam were given by members of the Institute's staff, while lectures on special subjects were delivered by Mr. J. le Poole, Director for International Health Affairs at the Ministry of Social Affairs and Public Health at The Hague, and by Dr. B. Rosicky of Czechoslovakia, invited by the W.H.O. as a guest lecturer.

The second part of the course, from the middle of August until September 1, was held in Liverpool, at the School of Tropical Medicine and the School of Public Health there. The course was concluded in London by visits to the Port of London Health Authority and the Welcome Museum of Medical Science.

The course, which ranged from malaria control to the extermination of rats, covered a wide field, and it is hoped that it will have beneficial results on the Public Health Services and on public health itself in several countries.

International Training Centre for Aerial Survey

Aim and organization

The International Training Centre for Aerial Survey at Delft, popularly known as the I.T.C., aims at promoting international training and research in aerial photogrammetry and other applications of aerial photography. It was established in 1950 as a joint institution of the Agricultural University at Wageningen and the Technological University at Delft, both of which are represented on the Board of Governors. The I.T.C. is an independent public foundation and is subsidized by the Netherlands Government.

Since aerial survey is of great value to technical and economical development schemes, this governmental support represents an important contribution to international technical assistance.

Curriculum and staff

Regular courses are given in:

a) Photogrammetry as well as aerial photography and survey navigation;

b) the interpretation of aerial photographs for geological, agricultural and sylvicultural purposes.

All lectures are given in English; the training system is highly flexible and adapted to individual needs, and it is accordingly, always possible to study special subjects. Under the guidance of the Dean, Prof. Dr. Ir. W. Schermerhorn, a full-time staff of about 25 members ensures close and constant contact with the students. Excursions and fieldwork in and outside the Netherlands are included in the training programme.

Degrees and Certificates

After complete training in photogrammetric theory and practice, designed for those who will occupy senior positions, the degree of *I.T.C. Photogrammetric Engineer* may be *obtained.*

The same category of students may also obtain the *I.T.C. Bachelor's Degree* in Photogrammetric Engineering, but only when other, additional, conditions have been fulfilled.

To students who have already a bachelor's degree of sufficiently high standard in a related field and who have obtained the I.T.C. Engineer's degree, *an I.T.C. Masters' Degree* may be awarded, after the presentation of a thesis.

The course for the degree of *Photogrammetric Technician* affords adequate training of a mainly practical character to those destined for work as highly qualified operators.

The degrees of *I.T.C. Photographic Engineer* and *I.T.C. Photographic Technician* may be obtained in similar fashion in the Aerial Photography Section.

In the Photo-Interpretation Section a certificate or, in certain cases, an Engineer's degree, may be awarded.

Students

The number of students has gradually increased, from 29 during the first year (1951—1952) to 88 (1958—1959). So far 55 different nationalities have been registered, most of the students having come to study photogrammetry.

The I.T.C. itself does not provide any fellowship, but so far about three-quarters of the students have been aided by a fellowship or other financial support, provided by the United Nations, individual governments or by private enterprise.

Research and bibliography

Scientific research is carried out on an international basis; the O.E.E.P.E., the organization of six European countries co-operating in the field of experimental photogrammetric research work, has its headquarters at the I.T.C. Several members of the staff have developed new methods and techniques, e.g. a new method of block adjustment devised by Dr. Jerie and Dr. Buringh's method of photo-analysis. Co-operation on the I.T.C. staff between the various disciplines is especially valuable for research work.

The I.T.C. publishes an international bibliography, consisting of abstracts covering the whole field of photogrammetry and aerial photo-interpretation.

Information

The I.T.C. will be glad to send its prospectus on request, and any other information for detailed mention of which there is insufficient space here. Please apply to: The Dean, International Training Centre for Aerial Survey, 3 Kanaalweg, Delft.

Third International Course in Hydraulic Engineering

The third international course in hydraulic engineering commenced on October 27 last after the participants and the faculty had spent a few days together, as in previous years, at a conference centre in the heart of the Netherlands, to make each other's acquaintance.

The number taking part in this postgraduate course, which once again will last for eleven months, is thirty-seven, eight of these being accompanied by their wives and children. The United States are represented by five engineers, Taiwan by four, Poland and India each by three, Australia, Gr. Britain, British Guiana, Pakistan, Peru and Venezuela by two, while others have come from Argentinia, Canada, Egypt, Kenya, Northern Rhodesia, the Philippines, Portugal and Turkey.

The new premises used by the course in the main building of the Technological University at Delft have now been completed, and it is here that the participants will be spending most of their time, attending lectures and working in groups. In the summer a period of individual work follows in other parts of the Netherlands, while the final weeks of the course will be devoted to preparation for the diploma examination.

As in foregoing years, the course provides for three main branches of study: Tidal and Coastal Engineering (including harbours); Reclamation; and Rivers and Navigation Works (including groundwater recovery), and those taking part in it can choose one of these or a combination of subjects from more than one. The faculty is composed of university professors and practising engineers. This year the participants too will be asked to give lectures on professional problems encountered in their own countries. A large number of excursions to places where hydraulic works are to be seen will take the participants to so many different parts of the Netherlands that they will probably obtain a more thorough impression of the country's topographpy than many Dutchmen have themselves.

Summer Course, 1959

The Netherlands Universities' Summer Course, organized annually at one or other of the institutions of higher education by the Netherlands Universities Foundation for International Co-operation (NUFFIC), was concerned this (thirteenth) year with the subject of "Religion and Culture".

The lectures given were as follows: *Culture* (Christianity and Culture, Eastern Religion and Culture, Islam and Culture), *Nature* (Main Trends in Greek Thought on Nature, The Christian Concept of Nature, The Eastern Concept of Nature, The Investigation of Nature, Human Nature), *Culture in Transition* (in Africa, Indonesia and India), *Community* (The Social and Economic Order, Technical Development, The Political Order, The Future Society).

Many other lectures on religion and culture could, of course, have been added to this list, but the time available – the summer course lasts for three weeks only – imposed its restrictions.

This year the Free (Reformed) University of Amsterdam acted as host, the chairman of the course being Dr. R. Hooykaas, professor of the history of natural science and of minerology in this university.

In general, the lectures delivered were rich in content and attracted great interest among those following the course, as was shown by the numerous questions put at the general discussions — far too many for all of them to be replied to in detail. In view of the slight degree of contact among the different speakers, the unity their handling of the various subjects displayed was highly remarkable.

A significant result of this series of lectures was the realization one could not avoid coming to of the essential similarity between the problems confronting Europe and America as a result of the rapid advance of technology, urbanization etc., and the still greater problems thrown up by these same trends in Asia and Africa.

The course was attended by about one hundred students and graduates from twenty countries. A number of Dutch students also took regular part in the course and this resulted in developing contact beween the Dutch participants and those coming from other countries. This contact was very evident in the joint sports and recreational activities (including walks through the historic quarters of Amsterdam and sailing on the Dutch lakes), at the social evenings and in the invitations received to spend week-ends in the homes of Dutch colleagues. Here mention should be made, too, of the readiness of professors and members of the academic staffs to receive small groups of the participants in their homes and family circles, a hospitality much appreciated by our foreign visitors. Many of those taking part in the course utilized the long week-ends allowed them to visit places of particular interest to them, including various institutes, among them the Institute of Pedagogy, museums, the diamond industry, livestock farms, windmills etc.

The system of having two lectures in the mornings, a communal lunch, discussions in small groups ("workshops") in the afternoons, followed by the general discussion, certainly kept the participants busily occupied with the academic programme, yet this was appreciated by the great majority of them.

Membership of the different discussion groups was arranged in such a way as to make each group reflect the composition of the entire group taking part in the course, as regards education and nationality. Deeper understanding of each other's personal and national views and/or difficulties gradually developed as the course proceeded, and bridges were built between differences of religion, culture, view of life and national sentiments. In this way the group achieved unity, a unity which came about via better understanding of each other, even though this was often accompanied by the retention of one's own way of looking at things.

A number of excursions were organized and films about the Netherlands shown, in addition to the lectures and discussions. The participants were accommodated in four students hostels. In the evenings they were given an opportunity of meeting and mixing together at the Free University's Girl Students' Club, an opportunity of which regular use was made.

These Netherlands Universities' Summer Courses have won an honourable and valued place for themselves in the field of international co-operation between Dutch students and graduates and students and graduates from abroad, while they are looked upon highly, both at home and abroad, by lecturers and participants, and also by the organizers themselves, as a step, however small, towards achieving "one world".

INTERNATIONAL SCIENTIFIC MEETINGS

International Congress on Building Research

From September 21 to September 25 last the International Council for Building Research, Studies and Documentation (C.I.B.) held its first international congress in Rotterdam, with Ir. J. van Ettinger, Director of the *Bouwcentrum,* Rotterdam, in the chair and with the Minister of Housing and Building as Honorary President.

The C.I.B. is an international, non-governmental organization set up in 1953 under the auspices of the United Nations, with consultative status with the UN's Economic and Social Council (Ecosoc). Its aim is to co-ordinate scientific research and study in the field of building in the various countries of the world and to stimulate the exchange of information. The office of the general secretary, Mr. J. de Geus is domiciled in *Bouwcentrum,* 700 Weena, Rotterdam. At the moment the International Council has members in practically all the countries of Western and East Europe and in Australia, the Belgian Congo, Canada, India, Indonesia, Israël, Japan and Ghana. Shortly before the congress began an application for membership was received from an institute in the United States.

About 350 experts in all, coming from 39 countries took part in the congress. A total of 44 reports were produced by 56 reporters, which reports furnished the material for discussion. The general impression made was that of a serious congress at which participants and organizers worked together with enthusiasm and in an atmosphere of friendliness free from all political differences. The conclusions put forward at the final session will probably prove to be a real stimulus to international co-operation in the field of building research and documentation.

The Rôle of the Student in Politics

The 10th International Student Seminar was held in Wassenaar, the Netherlands, from August 10 to August 16 last, organized by the NSR (Netherlands Students Council) in co-operation with COSEC (the Co-ordinating Secretariat of National Unions of Students).

Forty-five participants, coming from twenty-seven countries and from all the continents in the world, met together to discuss the main theme, which was: "The Rôle of the Student in Politics". This theme was divided into two sub-themes:

1. The rôle of the student as an individual in politics, and
2. The rôle of the students' organization as a means for expressing the political opinions of the student.

Those taking part in the seminar were divided into groups, each of which reported its conclusions on both sub-themes at plenary sessions. At the final session a number of telegrams and resolutions were agreed upon and an endeavour made to integrate the material which had been collected on the subject chosen for discussion.

Mr. H. J. Muller, president of the NSR, made a short speech after which he introduced Miss M. A. M. Klompé, the Netherlands Minister of Social Affairs, who after having pleaded for an active interest in politics on the part of students, declared the seminar open.

Dr. B. H. M. Vlekke, professor of present-day international politics in the University of Leyden, then introduced the main theme. In a brief historical review, he sketched the forward progress of civilization in European countries and the decline in political interest with which it was accompanied. He next arrived at a comparision between the 19th century student in Europe and the student from the "underdeveloped" countries of our own day. His conclusion was that the student should prepare himself during his student days for active participation in public life at a later date.

The group and plenary session then began. An attempt was made to formulate a distinction between the political situations in underdeveloped dependent, developed dependent, underdeveloped independent and developed independent nations. During the seminar's progress, however, two main groups became distinguishable, the developed and the underdeveloped countries, with Norway and France occupying a position halfway in between, particularly as regards the question as to how far political activity on the part of the national organizations of students may go. The most extreme views taken on this matter were: a) complete abstention from all activity not strictly confined to the student's own field — the view taken by some of the most highly advanced countries, and b) maximum political activity on the part of the students' organizations —

the viewpoint of the underdeveloped countries.

Although there was unanimity on the first sub-theme, it being advocated that the student should take a highly active interest in politics as an individual, the views already elaborated in the working papers on the political activities of the national unions of students (sub-theme 2) were held to without any modification, so that the final session was not able to arrive at a unanimous communiqué on this matter. In this session, it was resolved, however, to despatch three telegrams. The first was to the Secretary-General of the United Nations, asking for support to be given to Mr. Beukes, a South West African negro who has been refused a passport to prevent him from accepting a scholarship in Norway. The other two were despatched to the UN Commission for South West Africa and to the delegate from Guatemala, thanking them for the initiative they had taken in this matter. A resolution was adopted as an appendix to the General Report, supporting the students in Algeria and Nicaragua in their struggle. Finally, another resolution stressed the importance of the regular organization of such seminars as this and of the wide dissemination of the General Report.

The seminar programme contained receptions in The Hague and Amsterdam and excursions to Rotterdam and to the Zuyder Zee Reclamation Works.

The rôle of the NSR

Partly as a matter of principle and partly because it was responsible for the organization, the NSR endeavoured to keep the discussions short and to limit them to essential points. As regards political activity by the national unions, it recommended complete abstention.

Conclusion

The seminar did not produce any direct results or conclusions on the subjects discussed. The working papers were often lengthier and more complicated than the opinions expressed at the meetings, and views adopted before the congress were not diverged from. Contacts made in the lobbies were the most important feature of the gathering — they made one realize that behind every divergent opinion there is a human being.

E. F. VAN VOLLENHOVEN *

International Symposium on the "Theory of thin elastic shells"

From August 24 to 29, 1959, the International Union of Theoretical and Applied Mechanics (IUTAM) held an international symposium on the theory of thin elastic shells in the Technological University at Delft. The preparations for this symposium were made by a scientific committee consisting of a number of scientists from various countries. Certain members of the committee were also entrusted with the chairmanship of the seven scientific sessions held during the sypposium. At the opening ceremony a few words of welcome were spoken by Dr. C. H. van der Leeuw, president curator of the Technological University. This was followed by an address by Prof. F. K. G. Odquist, president of the IUTAM, and an introduction by Prof. C. B. Biezeno, who had accepted the symposium's honorary chairmanship.

Twenty-three discourses were given for the symposium, most of which related to general problems of the shell theory and to specific non-linear problems. The discussions which followed each discourse and especially the general discussion which took place at the end of the symposium helped to clarify the views on the shell theory.

In the interest of these discussions the number of specialists invited to take part in the symposium was limited to 70. Netherlands participation was naturally considerable, representing approximately a third of the total, while the remainder of the participants were of various nationalities.

The discourses of this symposium as well as a brief summary of the discussions are to be published in the spring of 1960 by the N.V. Noordhollandse Uitgevers Maatschappij.

6th International Congress on Gastro-Enterology

The Association of National European and Mediterranean Societies of Gastro-Enterology and the Society of Netherlands Gastro-Enterologists are organizing a 6th International Congress on Gastro-Enterology, to be held from April 20 to 24, 1960 at Leyden and Noorwijk-on-Sea, the Netherlands.

Information: Dr. C. Schreuder, Secretary-General, 6th International Congress on Gastro-Enterology, 16, Lange Voorhout, The Hague.

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*) Mr. van Vollenhoven is the Netherlands Students' Council's press representative.

Departure of the Chairman of the Board of Governors of Utrecht University

On September 18 last, at an official ceremony held in the crowded cathedral at Utrecht, Jonkheer Dr. M. L. van Holthe tot Echten delivered his farewell address as chairman of the university's board of governors. A summary of some of the points he made in this address, entitled "Number, Content, Entirety", are given below.

Human society is becoming increasingly dependent upon the results achieved by science and technology, in which connection the speaker referred to the growing number of students in the Netherlands. In 1940 the number was 13,000, while the latest count showed that there were now 32,000. It is calculated that by the year 1970 56,000 can be expected.

This enormous expansion in *numbers* involves all manner of problems. But the traditional forms of higher education and the practice of science become a problem themselves in view of questions which arise regarding the *content*, or quality, of teaching and science on the one hand and of its practitioners on the other. The "atomization" of science is effecting the universality, the totality, of human knowledge and its inner coherence.

The job of absorbing the coming tidal wave of students Dr. van Holthe tot Echten referred to as a struggle against time in which "improvization" and "adaptation" will be the watchwords for many years to come and in which the expansion of premises will come first. As far as Utrecht is concerned, this problem has been solved, in principle, by the decision to erect a new building outside the city.

We are obliged to ask ourselves how the student organizations will absorb the tidal wave. An increase in the number of students to 56,000 implies that students are being recruited from all levels of the population. In times past it was often family tradition that used to decide whether one should study or not, that is to say, aptitude and intellect were not the decisive factors. A change has gradually come about in this situation.

The question arises whether the population, grouped according to intelligence, can produce an annual supply of young people whose intellectual gifts are sufficient for them to undertake academic study. There are many in positions of authority who doubt this possibility. The result will be that study yields slighter results or that the level of academic achievement will decline. For this reason there is an ever more pressing need for differentiated study, for a distinction between education and preparation for official and other appointments in society and education for independent work in science and the academic world.

The speaker was of the opinion that so far the endeavours made to arrive at rounded-off but abbreviated courses of study had been made with only little inner conviction. Yet this is the course that will have to be followed. Moreover, it will be possible to draw on a larger reservoir of suitable students.

In view of the competition being offered by industrie the standard of professor and academic staff will be largely dependent on reasonably high salaries for those who occupy key positions in the work of caring for the culture, welfare and general well-being of the nation.

Furthermore, the climate in which the work goes on and the equipment with which it is performed must be such as to afford full play to the human spirit's urge to adventure in carrying out scientific research. Professors should not be turned into civil servants and committee meeting slaves—indeed, care should be taken to avoid a devaluation of the position and prestige of university professors in our country, for example, by an inflationary expansion in their number.

Professor Rogier's 65th Birthday

July 26 last was the 65th birthday of Dr. L. J. Rogier, professor of history in the Roman Catholic University at Nymegen and one of the Netherlands' most prominent historians.

Professor Rogier, a native of Rotterdam, was for many years a teacher in his native town and was already attracting attention in those early days by publications of many different kinds and particularly by his independent mind and his engrossing style of writing. One of his principal works appeared in 1946, the three-volume *History of Catholicism in the Northern Netherlands in the 16th and 17th Centuries* (in Dutch), which work procured him a university chair. In 1953, on the occasion of the centenary celebrations of the Emancipation of the Roman Catholics in our country, he published, in collaboration with Rector de Rooy, *In Vrijheid Geboren* (Born in Freedom), the history of one hundred years of Catholicism in the Netherlands.

At the moment Professor Rogier is engaged on a study of Nymegen during the German occupation, but it may be that the most interesting work of all still lies ahead of him. He has been commissioned by the Nymegen local authority to write a history of the city. There happen to be divergent views as regards the earliest history of this city, and although Professor Rogier is no specialized medievalist, his work may put an end to the controversy.

Death of Professor Mendel

Dr. B. Mendel, professor of pharmacology in the University of Amsterdam, passed away on August 25 last.

Professor Mendel was born in Essen, Germany, in 1897. He studied medicine at the Universities of Bonn, Frankfurt on Maine, Halle and Berlin, receiving his doctor's degree in medicine at the last-mentioned university in 1921. From 1921 to 1923 he worked at the 3rd Medical Clinic of Berlin University, performing cancer research from 1925 to 1933 in close collaboration with Professor Otto Warburg, which research he continued in the Netherlands from 1933 on.

In 1936 he left for Canada, where he acquired Canadian nationality in 1939. He was originally an assistant professor, then, subsequent to 1942, an associate professor, and finally, from 1944 on, professor of the physiology of cells in the University of Toronto. He was appointed to a chair in Amsterdam in 1950. He had been a member of the Royal Society in London from 1957. Professor Mendel occupied himself chiefly with the study of matters which restrict the development of cancer cells and of enzymes which exert an influence on the sympathetic and parasympathetic nervous systems.

Miscellaneous Writings of Professor van Eysinga—Jubilee Edition

In January 1958 Professor Jonkheer Mr. W. J. M. van Eysinga, professor at Groningen University from 1908 to 1912 and professor of international law in the University of Leyden from 1912 to 1931, reached the age of 80. On his birthday a number of friends and former colleagues of his requested his permission to publish a collection of his miscellaneous studies and essays, which permission was granted.

The larger works of Professor van Eysinga, published in book form, are easily obtainable, such works as *Proeve eener Inleiding tot het Nederlandsch Tractatenrecht* (Dissertation, 1906), *Ontwikkeling en Inhoud der Nederlandsche Tractaten* (1916), *Evolution du Droit Fluvial International de Congres de Vienne au Traité de Versailles* (1919), *La Commission Centrale pour la Navigation du Rhin* (1935) — *German translation,* 1936 — *Gids voor de Groot's De Iure Belli ac Pacis (1945), Huigh de Groot* (1945) — Basel translation, 1952.

The new volume has now been published *, entitled *Sparsa Collecta,* a number of miscellaneous writings by W. J. M. van Eysinga, re-issued by F. M. van Asbeck, E. N. van Kleffens, K. P. van der Mandele and J. R. Stellinga.

Guyot Plaquette for Dr. Hallpike

The Guyot Prize, awarded once every five years, was presented this year to Dr. Charles Skinner Hallpike, lecturer at the British Postgraduate Medical Federation in London, on the occasion of the ceremony at the University of Groningen connected with the change of Rector Magnificus.

Professor E. Huizinga explained how this prize had originated and gave an account of Dr. Hallpike's merits. The prize was inaugurated to pay homage to Henri Daniel Guyot, who founded the Deaf-Mutes Institute at Groningen in 1790. It is awarded for the most important discovery made in the field of ortology every five years. The first award was made in 1914 to Dr. Robert Barany at Vienna. The plaquette was handed to Dr. Hallpike with a short speech by the Rector Magnificus.

Honorary Doctorate in South Africa for Professor Woerdeman.

Dr. M. W. Woerdeman, professor of anatomy in the University of Amsterdam, who retired from the function of Rector Magnificus there in September last, has been made an honorary doctor of philosophy by the University of South Africa at Pretoria. Professor Woerdeman is chairman of the Royal Academy of Sciences and Letters and visited South Africa as the Academy's representative to attend the recent Jubilee celebrations of the South African *Akademie vir Wetenskap en Kuns,* founded in 1909.

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Professor Simpson Returns to America

Professor George Simpson, of Brooklyn College, New York, who has been functioning as guest professor of sociology during the past academic year in the University of Leyden, left the Netherlands in August last on his way back to the United States.

Many students followed his lectures with great interest and this charming "expert on society", with his penetrating and original mind, has left a wide circle of friends behind him in the Netherlands, and in Leyden particularly.

Honorary Doctorate for Professor Biezeno

On October 5 last, Dr. Ir. C. B. Biezeno, who retired from his chair in applied mechanics in the Technological University at Delft in 1958, after a term of office of 44 years, received an honorary doctorate from the University of Ghent, Belgium.

Professor Biezeno has been a member of the Royal Academy of Sciences since 1939.

New Curator of the Ryksmuseum

Jonkheer Dr. D. C. Roëll retired as from December 1, 1959 from his function as Head Curator of the Ryksmuseum at Amsterdam, Dr. A. F. E. van Schendel, the former curator, being appointed to succeed him. Jonkheer Roëll will be charged with lending advice on the reconstruction of the museum interior now going on.

Dr. van Schendel, a son of the celebrated author, the late Arthur van Schendel, was born in Ede in 1910. He was educated at a grammar school in Florence, studied art history at the Sorbonne in Paris, and took his doctorate in 1938. He has been attached to the Rijksmuseum in various capacities since 1936. In 1956 he functioned as chairman of the conference of the International Council of Museums.

Professor Mühlbock Off to the United States

At the invitation of the United States Public Health Service, Professor Dr. O. Mühlbock, chairman of the staff council of the Netherlands Cancer Institute and professor extraordinarius in experimental oncology at Amsterdam University, will be taking part in a conference in Vermont, U.S., where new methods will be sought for employing chemical therapeutic treatment in cancer cases.

Professor Mühlbock will also be delivering a series of lectures on the work of the Netherlands Cancer Institute to university audiences in America. His journey will also involve study, commissioned by Unesco, of the latest developments with regard to research with germ-free animals.

Death of Professor de Buck

Dr. A. de Buck, professor of Egyptology and of the history of ancient religions in the University of Leyden, died on October 28 last.

Born in 1892, Porfessor de Buck studied theology at Leyden, specializing early on in the history of religion and in Egyptology, which latter subject he also studied at Göttingen. He obtained his doctor's title at Leyden in 1922 with a thesis entitled "Egyptian Concepts of the Primitive Mountain".

After having functioned for some years as a minister of the church, he proceeded to Egypt in 1925 in the service of the Oriental Institute of the University of Chicago to study texts on sarcophagi of the Middle Kingdom.

In 1929 he became a lecturer in Egyptology in the University of Leyden, being charged in 1937 with the teaching of the history of the ancient, non-biblical religions and of Egyptology in the Theological Faculty. He was appointed in 1939 as professor extraordinarius at the same university and later, in 1949, as ordinary professor there.

Professor de Buck published various works including both editions of Egyptian texts provided with commentaries and Egyptian grammar books and anthologies, some of which also appeared in French and English: *The Egyptian Coffin Texts* (5 volumes 1935—1954), *Grammaire élémentaire du moyen Egyptien* (1952), and an *Egyptian Reading Book* I (1948).

DOCTORAL DISSERTATIONS

Theology

GOUDOEVER, JAN VAN. *Biblical calendars.* Leyden, 1959.
State University at Leyden.

KOSMALA, HANS. *Essenismus und Christentum.* Leyden, 1959.
State University at Leyden.

Law

BEER, JOHANNES CHRISTOFFEL DE. *Uitlokking als probleem in die strafregwetenskap.* (Incitement as a Problem in Criminology). Leyden, 1959.
With a summary in English.
State University at Leyden.

MITRASING, FRITS EDUARD MANGAL. *Tien jaar Suriname. Van afhankelijkheid tot gelijkgerechtigdheid. Bijdrage tot de kennis van de staatkundige ontwikkeling van Suriname van 1945–1955.* (Ten years in Surinam. From dependence to parity. A contribution to the knowledge of the political development of Surinam between 1945 and 1955). Leyden, 1959.
With summaries in English. French and Spanish.
State University at Leyden.

Medicine

ENNEKING, JULES HENRI JOSEPH. *De quantitatieve eiwitbepaling met behulp van papier-electrophorese en haar toepassing bij een onderzoek over proteinurie.* (The Quantitative Determination of Protein with the aid of Paper-electrophoresis and its Application in an Investigation of Proteinuria). Amsterdam, 1956.
With a summary in English.
University of Amsterdam.

FLEURY, PAUL. *Oligophrenia phenylpyruvica.* Leyden, 1959.
With a summary in English.
State University at Leyden.

GELISSEN, HERMAN JOSEPH. *Coarctation de l'aorte. Généralités et résultats de 258 opérations.* Utrecht, 1959.
With summaries in English and Dutch.
State University at Leyden.

GRASVELD, CARL MARIA. *De hypertrophische pylorusstenose. Met een na-onderzoek van 146 patiënten, die in hun eerste levensmaanden aan deze ziekte geleden heben.* (Hypertrophic Pylorusstenosis. With a follow-up examination of 146 patients who had suffered from this disease in the first months of their lives). Breda, 1959.
With a summary in English.
University of Amsterdam.

HILGERS, JOHAN HERMAN CHRISTIAAN. *Pterygium on the Island of Aruba.* Amsterdam, 1959.
With summaries in Spanish and Dutch.
University of Amsterdam.

LOOKEREN CAMPAGNE, WILLEM VAN. *Een enquête bij coeliakiepatienten.* (An Investigation concerning Coeliaca Patients). Leyden, 1959.
With a summary in English.
State University at Leyden.

LUCARDIE, STIENA MAARTJE. *Het beloop van de oogverschijnselen bij de ziekte van Graves.* (The Development of Eye Symptoms in Graves' Disease). The Hague, 1959.
With a summary in English.
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MUNTENDAM, HENDRIK. *De intraveneuze glucosebelastingproef. Methodiek en toepassing bij het bronchuscarcinoom.* (The Intravenous Glucose Charging Test. Method and Application in Cases of Carcinoma of the Bronchus). Amsterdam, 1959.
With a summary in English.
University of Amsterdam.

OSKAM, HENDRIK JACOBUS. *Combinatieantibiogrammen.* (Combination Antibiograms). Utrecht, 1959.
With summaries in English and French.
State University at Utrecht.

SCHAPPERT-KIMMIJSER, JOHANNA. *De blindheidsoorzaken in Nederland.* (The Causes of Blindness in the Netherlands). Assen, 1959.
With a summary in English.
State University at Utrecht.

SCHOOT, JOHANNES BERNARDUS VAN DER. *Het AE-phenomeen.* (The AE-Phenomenon). 1959.
With a summary in English.
University of Amsterdam.

VEEGER, L. M. *Papoea-dorpverzorgsters. Een sociaal-hygienisch experiment in Nederlands Zuid Nieuw-Guinea.* (Papuan Village Medical Care Workers. A socio-hygienic experiment in Netherlands (South) New Guinea). Amsterdam, 1959.
With a summary in English.
University of Amsterdam.

WAAIJ, DIRK VAN DER. *Ontwikkeling en transmissiemogelijkheden van toxoplasma gondii in experimentele infectie met chronisch beloop bij muizen.* (Development and Possibilities of Transmission of Toxoplasma Gondii in the Experimental Infection with Chronic Trends in Mice). Leyden, 1959.
With a summary in English.
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WYERS, P. J. H. *Over tubulaire terugresorptie en de afbraak van albumine bij het nephrotisch syndroom.* (On tubular Re-resorption and the Disintegration of Albumin in the Nephrotic Syndrome). Nymegen, 1959.
With a summary in English.
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WIJNMALEN, ELISA HENRIETTE WILLEMINA. *Diabetes en arbeid. Een onderzoek naar de plaats van diabetici in het arbeidsproces.* (Diabetes and Work. An enquiry into the place of diabetic patients in employment). Assen, 1959.
With a summary in English.
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ZIELHUIS, REINIER LAMBERT. *De indistriële loodintoxicatie in Nederland. Beschouwingen en onderzoekingen.* (Lead-poisoning in Industry in the Netherlands. Observations and Investigations). Leyden, 1959.
With a summary in English.
State University at Leyden.

The Arts

BENDIEN, JOHANNES. *Persoonlijkheidskenmerken van „paranormaal begaafden" in het licht van de Rorschach.* (Personality Characteristics of persons with "para-normal" gifts – judged by the Rorschach Test). Amsterdam, 1959.
With a summary in English.
University of Amsterdam.

ENG-LIEDMEIER, A. M. VAN DER. *Soviet Literary Characters. An investigation into the portrayal of Soviet men in Russian prose 1917–1953.* The Hague, 1959.
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STELLINGWERF, JOHANNES. *Werkelijkheid en grondmotief bij Vincent Willem van Gogh.* (Reality and Basic Motive in the case of Vincent Willem van Gogh). Amsterdam, 1959.
With a summary in English.
Technological University at Delft.

WOLFS, PETRUS FRANCISCUS. *Das Groninger „Religionsgespräch" (1523) und seine Hintergründe.* Nymegen, 1959.
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Sciences

BEETS, HANS PAUL. *Enige kinetische metingen in verband met de werking van chymotrypsine.* (A number of Kinetic Measurements Connected with the Effect of Chymotrypsin). The Hague, 1959.
With summaries in English and Spanish.
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BOLAND, JOHAN CHRISTOPH. *Bijdrage tot de topologie der vlakke, continue afbeeldingen.* (Contribution to the Topology of Smooth, Continuous Images). Amsterdam, 1959.
With a summary in English.
University of Amsterdam.

BOTS, GERARDUS JOANNES CANISIUS. *Het fonteineffect en het mechanocalorisch effect in vloeibaar helium(beneden 1° K.* (The Fountain Effect and Mechano-Caloric Effect in Fluid Helium below 1sK). The Hague, 1959.
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DEUL, DIRK HERMAN. *De bal-gevoelige factor in de intracellulaire ademhaling.* (The "Ballsensitivity" factor in Intracellular Respiration). Amsterdam, 1959.
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ENGELSMA, GERRIT. *Oxidatie van aromatische aminen door zuurstof met behulp van kopercomplexen.* (Oxidation of Aromatic Amines by Means of Oxygen and with the Aid of Copper Complexes). The Hague, 1959.
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FIKENSCHER, LUCIE HENRIETTE. *Bijdrage tot de kennis van de biologie der alkaloiden by erythroxylum coca.* (Contribution to the Knowledge of the Biology of the Alkaloids in *Erythroxylum Coca*). The Hague, 1959.
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GON, JAN JACOB DENIER VAN DER. *Gezichtsscherpte. Een fysisch-fysiologische studie.* (Keenness of Sight. A physical-physiological Study). Amsterdam, 1959.
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HARTOG, CORNELIS DEN. *The Epilithic Algal Communities Occurring along the Coast of the Netherlands.* Amsterdam, 1959.
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KHEIR, ALI MOHAMED. *Dielectric Relaxation in Solutions of Cellulose Acetate.* The Hague, 1959.
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KOOISTRA, GERRIT. *Investigations into the Chemotherapeutic Activity of Nitroso Hydroxyaryl Compounds towards some Virus Diseases.* Amsterdam, 1959.
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LAARHOVEN, WILHELMUS HENDRICUS. *Synthese en eigenschappen van enige sterisch belemmerden stilbeenderivaten.* (Synthesis and Characteristics of a Number of Sterical Impeding Toluene Derivatives). The Hague, 1959.
With a summary in English.
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MOLLER, WILHELMUS JOHANNES HUBERTUS MARIA. *Electrical Transport Properties of Alkali Albuminates.* Groningen, 1959.
With a summary in Dutch.
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MUYTJENS, EMILE EMANUEL. *Onderzoekingen over de hemolyse van erytrocieten van tocoferoldeficiënte kuikens.* (Research into the Hemolysis of Erythrocites of Tocopheraldeficient Chickens). The Hague, 1959.
With a summary in English.
University of Amsterdam.

SLIUTERS, THEODORUS JOSEPHUS MARIA. *Inelastische botsingen tussen Ar+ ionne of Ar atomen en de gasmolekulen* H_2*, He, Ar, Ne, Kr en Ke in het energiegebied van 5–24 KEV.*
(Inelastic Collisions between Ar + Ions or Ar Atoms and the Gas Molecules H_2, He, Ne, Ar, Kr and Ke in the 5–24 KEV Energy Field). Groningen, 1959.
With a summary in English.
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Economics

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Agricultural University at Wageningen.

SCHOLARSHIPS AND FELLOWSHIPS FOR FOREIGN STUDENTS, TENABLE IN THE NETHERLANDS[1]

Netherlands Universities Foundation for International co-operation

a–b. Scholarships for study at the Institute of Social Studies; *c.* A limited number of other scholarships and fellowships.

1. *a.* Social Sciences (Two-Year Course),
   b. Public Administration,
   c. Unrestricted.
2. *a–b.* Institute of Social Studies, The Hague,
   c. The Netherlands.
3. Available to nationals of *all countries;* candidates must have for *a.* M.A. degree in one of the social sciences; for *b.* broad experience in the public service or as a staff member in institutes of public administration; for *c.* advanced graduate status.
4. *a.* Fl. 5000 maximum (Two-Year Course in the Social Sciences),
   b. Fl. 1500 maximum (Six-month Course in Public Administration),
   c. Unspecified.
5. *a.* 16 months; *b.* 6 months; *c.* unspecified.
6. Unspecified.
7. *a–b.* The Rector, Institute of Social Studies, 27, Molenstraat, The Hague: *a.* by 1 June[2]; *b.* by 1 October[2]; *c.* Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

Institute of Social Studies

27, Molenstraat, The Hague

Scholarships (Ford Foundation Grant) for Four-Month Course in Comprehensive Planning.

1. Comprehensive planning
2. Institute of Social Studies, The Hague.
3. Available to nationals of *all countries;* candidates must have degree in the Social sciences, engineering, architecture, or agriculture, and broad experience in physical planning.
4. Fl. 1.500
5. 4 months
6. 14
7. The Rector, Institute of Social Studies, 27, Molenstraat, The Hague, by 1 June.

Government of the Netherlands

Ministry of Education, Arts and Science, The Hague.
Exchange Scholarships of the Netherlands.
Netherlands-Belgian Cultural Convention.

1. Unrestricted.
2. Netherlands.
3. Available to *Belgian* nationals; must have university degree or have completed several years' higher study.
4. Fl. 300 per month plus tuition.
5. 1 to 6 months[1].
6. The Convention provides for exchanges of approx. 90 months; number awarded depends on the duration of each scholarship.
7. Ministère de l'Instruction Publique, Brussels, Belgium, in May.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.
Exchange Scholarships of the Netherlands.

a. Anglo-Dutch Cultural Convention.
b. Netherlands-French Cultural Convention.

1. Unrestricted.
2. Netherlands.
3. Available to *a. British* nationals; must have a university degree or have completed several years' higher study; *b.* nationals of *France* who have completed several years' higher study.
4. Fl. 300 per month plus tuition.
5. *a.* 1 academic year; *b.* 1 to 6 months.
6. *a.* 5; *b.* the Convention provides for exchanges of approx. 90 months; number awarded depends on the duration of each scholarship.
7. *a.* The Controller, Education Division, The British Council, 65 Davies Street, London, W. 1, England, by March 12;

   b. Office National des Universités et Ecoles Françaises, 95 Boulevard Raspail, Paris-6e, France, in May.

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[1] The figures in the margin refer to: 1: field of study; 2: where tenable; 3: conditions; 4: value; 5: duration; 6: nummer available; 7: address for applications.
A "1" added after the duration of the scholarship indicates that it is renewable or extendible.

[2] For Indian citizens one month earlier.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.

Netherlands Government Scholarships.

1. Unrestricted.
2. Netherlands.
3. Available to nationals of *a.* Australia; *b.* Austria; *c.* Canada; *d.* Denmark; *e.* Germany; *f.* India; *g.* Norway; *h.* Spain; *i.* Sweden; *j.* Yugoslavia; must have university degree or have completed several years' higher study.
4. ± Fl. 2700 plus tuition.
5. 1 academic year.
6. *a.* 3; *b.* 2; *c.* 1; d. 1; *e.* 4; *f.* 1; *g.* 2; *h.* 1; *i.* 1; *j.* 2.
7. *Australia:* Office of Education of the Commonwealth of Australia, Canberra; *Austria:* Bundesministerium für Unterricht, Minoritenplatz 1, Vienna; *Canada:* Netherlands Embassy, Ottawa; *Denmark:* Ministry of Education, Copenhagen; *Germany:* Deutscher Akademischer Austauschdienst, Nassestrasse 11a, Bonn; *India:* Ministry of Foreign Affairs, New Delhi; *Norway:* Kontoret for culturelt samkven med utlandet, Oslo; *Spain:* Direccion General de Relaciones Culturales, Madrid; *Sweden:* The Swedish Institute, Jungsgaten 42, Stockholm; *Yugoslavia:* Commission for Foreign Cultural Relations, Bircaninova 6, Belgrade.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.

Exchange Scholarships of the Netherlands.

Cultural Convention with Luxembourg.

1. Unrestricted.
2. Netherlands.
3. Available to nationals of *Luxembourg;* must have completed several years' higher study.
4. Fl. 300 per month plus tuition.
5. 1 to 3 months[1].
6. The Convention provides for exchanges of approx. 12 months; number awarded depends on the duration of each scholarship.
7. Ministère de l'Education Nationale, Luxembourg.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.

Exchange Scholarship of the Netherlands.

Cultural Convention with. Italy.

1. Unrestricted.
2. Netherlands.
3. Available to nationals of *Italy;* must have university degree or have completed several years' higher study.
4. Fl. 300 per month plus tuition.
5. 8 months.
6. 3.
7. Direzione Generale delle Relazioni Culturali, Ministere degli Affari Esteri, Piazza Firenze 27, Rome, Italy.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.

Netherlands Government Scholarships.

1. Unrestricted.
2. Netherlands.
3. Available to *South African* graduates and undergraduates
4. Fl. 3.000 plus tuition.
5. 1 academic year.
6. 10.
7. Genootschap Nederland-Suid-Afrika,
   p/a Prof. Dr. D. Pont, Waterkloofweg 266,
   Pretoria, South Africa.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.

a. Hendrik A. van Coenen Torchiana Scholarship. *b.* Edward W. Bok Scholarship. *c.* Hendrik Willem van Loon Scholarship.

1. Unrestricted.
2. Netherlands.
3. Available to nationals of U.S.A.; age preferably under 28; must have bachelor's degree; applicants in the field of medicine must have M.D. degree; some knowledge of Dutch language desirable.
4. Fl. 2.700 plus tuition.
5. 1 academic year.
6. *a.* 1; *b.* 1; *c.* 1.
7. Institute of International Education, 1 East 67th Street, New York 21, N.Y., U.S.A. by November 1.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.

Scholarships for Netherlands Summer Courses.

1. Subjects included in Dutch university summer courses.
2. Netherlands.
3. Available to nationals of *Italy* and *Spain.*
4. Fl. 400.
5. 1 month.
6. 7: 3 to Italy; 4 to Spain.
7. *Italy:* Direzione Generale delle Relazioni Culturali, Ministero degli Affari Esteri, Piazza Firenze 27, Rome; *Spain:* Dirección General de Relaciones Culturales, Madrid.

Government of the Netherlands

Ministry of Education, Arts and Sciences, The Hague.
Unesco-Netherlands Government Fellowships.

1. Natural sciences, cultural activities.
2. Netherlands.
3. Available to nationals of Ghana, Pakistan, Iran; should be mature persons already established in their professions; must have knowledge of Dutch, English, French or German. Awards are granted for study at universities or institutions of university level. Candidates should present study programmes in fields not represented under the Unesco Technical Assistance programme or the FAO programme.
4. Fl. 3,000 plus tuition fees and other facilities.
5. 6 months.
6. 3 (1 to each country).
7. Ministry of Education or Ministry of Foreign Affairs in candidate's own country.

Government of the Netherlands

Netherlands Bureau for International Technical Assistance, Ministry of Foreign Affairs, 500, Van Alkemadelaan, The Hague.
Netherlands Fellowship Programme for Technical Co-operation.

1. Unrestricted.
2. Netherlands.
3. Available to nationals of *underdeveloped countries*; candidates must possess good personal qualities, training and experience, which will enable them to benefit from advanced study and observation in the Netherlands; working knowledge of Dutch not necessary, but candidates should speak English, French or German. On completion of studies recipients must return to their home country and work in their profession.
4. *a*. Fl. 400 per month, plus travel relating to studies within the Netherlands up to a maximum of Fl. 75 per month, tuition, book-allowance in the amount of Fl. 100 if the duration of the fellowship is 4 months or less, and Fl. 175 if the duration is over 4 months.
   In exceptional cases permission may be granted for short study visits abroad, and contribution made towards expenses incurred. In certain cases the Netherlands Government may pay for outward and/or homeward journey from or to candidate's country.
5. From 2 to 12 months. Duration varies according to programme of study.
6. Approx. 80.
7. Office of the Netherlands diplomatic representative in candidate's own country.

Free (Reformed) University of Amsterdam

162—166, Keizersgracht, Amsterdam.
Scholarships.

1. Theology, philosophy, arts, medicine, law, natural sciences (chemistry, physics, mathematics, biology), social and economic sciences.
2. Netherlands: Free Reformed University of Amsterdam.
3. Available to nationals of *all countries;* must be educated to university entrance standard. Awards are to enable recipients to acquire academic knowledge based on Christian principles.
4. Maintenance, tuition and an amount for incidental expenses.
5. 1 academic year.
6. 4.
7. Secretary of the International Relations Committee, Vrije Universiteit te Amsterdam, 162—166, Keizersgracht, Amsterdam, April 15.

University Asylum Fund

16, F. C. Dondersstraat, Utrecht.
Donors: Dutch University students, professors and private persons. Scholarships.

1. Unrestricted.
2. Netherlands.
3. Available to *refugee* students, to enable them to finish their studies in the Netherlands; must be qualified to undertake academic studies.
4. Fl. 170 per month, plus Fl. 50 every 3 months, tuition, books, etc.
5. Unspecified (until completion of studies).
6. Unspecified (in November 1959 over 250 awards made since 1948).
7. Stichting Universitair Asyl Fonds, 16, F.C. Dondersstraat, Utrecht, and to the offices of international refugee relief organizations.

Netherlands Organization for the Advancement of Pure Research

60, Lange Voorhout, The Hague.
Exchange Fellowships for Scientific Research.

1. Scientific research.
2. Netherlands.
3. Available to *French* nationals who are scientific research workers of proven ability, in exchange for similar facilities for Netherlands research workers offered by the National Council for Scientific Research in Paris.
4. Covers transportation, maintenance and research facilities.
5. Varies in individual cases.[1]

6. Unspecified; as the convention between the Netherlands and the CNSR provides for exchanges of 30 months of fellowships in an academic year, number awarded depends on duration of each award.
7. Monsieur le Directeur du CNRS, 4e Bureau Echanges, 13 quai Anatole-France, Paris-7e, France.

Netherlands Organization for the Advancement of Pure Research

60, Lange Voorhout, The Hague.
Exchange Research Fellowships.

1. Research in any science, except applied sciences.
2. Netherlands.
3. Available to *Italian* nationals who are research workers of proven ability, in exchange for similar facilities for Netherlands research workers offered by the Consiglio Nazionale delle Ricerche in Rome.
4. Covers transportation, maintenance and research facilities.
5. Varies in individual cases (preferably not longer than 4 months).
6. Unspecified (number of fellowshops depends on the duration of each award and the funds available).
7. Consiglio Nazionale delle Ricerche, Piazza delle Science 7, Rome, Italy.

Utrecht Observatory

2, Zonnenburg, Utrecht.
Exchange Assistantship.

1. Astronomy.
2. Netherlands: Utrecht Observatory.
3. Available, on an exchange basis, to students of theoretical or observational astrophysics in *any country*.
4. Exchange of salary.
5. Approx. 3 months.
6. 1.
7. Utrecht Observatory, University of Utrecht, 2, Zonnenburg, Utrecht.

Hague Academy of International Law

Peace Palace, The Hague.
Scholarships for the Academy's summer sessions, offered and awarded by the Academy. Scholarships to the Academy are also offered by various governments and public and private institutions to whom direct application should be made. They are not covered by the present notice.

1. International law.
2. The Hague Academy of International Law.
3. Applicants' antecedents should qualify them to benefit from the tuition.
4. in 1960: Fl. 300, covering approximate expenses during the three-week session. Travelling expenses will not be refunded.
5. July – August, 1960.
6. The number of scholarships is restricted. In no case can more than two be awarded in one year to persons coming from the same country. This rule does not apply to scholarships instituted in a country for the benefit of its nationals, the award of which has been entrusted to the Curatorium of the Academy.
7. Secretariat of the Hague Academy of International Law, The Peace Palace, The Hague, before April 1.

International Agricultural Centre

1, Generaal Foulkesweg, Wageningen.
Fellowships.

1. Agriculture, including horticulture, forestry, etc.
2. Netherlands.
3. Available to nationals of *all countries*; age 25 or over; candidates should have M.Sc., or B.Sc. with experience in particular field of study.
4. Fl. 400 maximum per month; an allowance for study tours in the Netherlands may also be paid.
5. Unspecified.
6. Approx. 12.
7. The Director, International Agricultural Centre, 1, Generaal Foulkesweg, Wageningen.

International Institute for Land Reclamation and Improvement

15, Prinses Marykeweg, Wageningen.
Fellowships.

1. Land reclamation.
2. Netherlands.
3. Available to nationals of *all countries;* candidates should hold a position in the field of land reclamation and improvement, and be able to stimulate research work; must speak English, French or German. Applications must be approved and recommended by government agencies, institutions or persons recognized as authorities in the Institute's field.
4. Fl. 300 per month, plus transportation in the Netherlands.
5. Usually approx. 2 months.
6. 2.
7. International Institute for Land Reclamation and Improvement, P.O. Box 45, Wageningen.
   Applications should reach the Institute in November each year.

Netherlands College for Representation Abroad

Nyenrode, Breukelen.
Exchange Scholarships.

1. Commercial and economic studies with special reference to international trade.
2. Netherlands: Netherlands College for Representation Abroad.
3. Available to male nationals of *U.S.A.* in exchange for similar facilities offered by colleges and universities in U.S.A.; age 18 to 23; preference given to candidates of proven scholastic and leadership ability.
4. Maintenance and tuition.
5. 1 academic year.
6. 5.
7. Nederlands Opleidings-Instituut voor het Buitenland, Nyenrode, Breukelen.

Centre for the European Work of the Dutch Folk High School

Huize Kranenburgh, 22 Hoflaan, Bergen, N.H.

1. Folk high schools.
2. Netherlands.
3. Available to nationals of *all countries*; age 20 to 30; must be or studying to become adult educators; preferably university education; knowledge of Dutch, English, French or German.
   Award is to enable recipients to gain practical experience in folk high school work in the Netherlands, as part of the Dutch education system.
4. Maintenance and tuition.
5. 1 month.
6. 2.
7. Stichting voor Europees Volkshogeschoolwerk, 55, Breelaan, Bergen, N.H., by 1 January.

Fulbright Program

Scholarships in the Netherlands, Fulbright Agreement, U.S.A.-Netherlands.

1. Unrestricted.
2. Netherlands.
3. Available for U.S. citizens – students must have at least college-education; teachers M.A.; Lecturers Ph.D. degree.
4. *f* 538 per month + tuition (students)
   f 1284 „ „ (teachers)
   f 1350—*f* 1680 per month (lecturers)
   Travel costs paid to and from the Netherlands.
   Available 3 travel grants, only for researchers who have made their own arrangements for maintenance.
5. Approximate figures: 11 lecturers, 20 students, 9 teachers.
6. Duration: 9 months (students, lecturers), 10 months (teachers).
7. For students:
   Institute of International Education,
   1 East 67th Street, New York 21, N.Y.
   For teachers:
   Office of Education,
   Department of Health, Education and Welfare, Independence Avenue, Washington 25, D.C.
   For lecturers:
   Conference Board of Associated Research Councils, 2101 Constitution Avenue, Washington 25, D.C.

Canada Council

a. Senior Fellowships;
b. Pre-Doctor's Degree Fellowships.

1. Unrestricted.
2. Netherlands.
3. Available to residents in Canada or Canadians living abroad *a.* scholars and teachers having a well-established record in the arts, humanities or social sciences. *b.* candidates are required to hold a Master's degree or have equivalent training; the proposed study must lead to a Doctor's degree.
4. *a.* average value of $ 4000 (plus travel allowance, plus two-third of travel allowance for wife) – subject in the case of members of university faculties and of Government Departments and agencies to the provision by the employer of an appropriate salary allowance.
   b. average value of $ 2000 plus travel allowance.
5. *a.* one year; *b.* one year.
6. Unspecified.
7. The Secretary, The Canada Council, 140, Wellington Street, Ottawa, Canada.
   a. by December 15; *b.* by January 15.

BASIC DATA ON INTERNATIONAL COURSES OFFERED IN THE NETHERLANDS [1]

(see also the "International Courses" Section in this Bulletin)

Institute of Social Studies

Information: The Rector, Institute of Social Studies, 27, Molenstraat, The Hague.

COURSES OFFERED:

a. Two-year Course in the Social Sciences. The study of social change and economic development in the widest sense. The course leads to the degree of Master of Social Sciences.
REQUIREMENTS FOR ADMISSION: Advanced academic standing in one of the social sciences.
NEXT COURSE STARTING: September 1960.
Closing date for applications: June 1, 1960.[2]

b. Seven-month Advanced Diploma Course in Social Welfare Policy.
REQUIREMENTS FOR ADMISSION: Practical experience in social work, preferably at the teaching and public service level.
NEXT COURSE STARTING: September 1960.
Closing date for applications: June 1, 1960[2].

c. Four-month Course in Comprehensive Planning.
REQUIREMENTS FOR ADMISSION: Graduate standing in social sciences, engineering, architecture or agriculture, and preferably broad experience in physical planning.
NEXT COURSE STARTING: September 1960.
Closing date for applications: June 1, 1960[2].

d. Six-month Advanced Diploma Course in Public Administration.
REQUIREMENTS FOR ADMISSION: Advanced academic status, and broad experience in the public service or as a member of the staff in institutes of public administration.
NEXT COURSE STARTING: January 1961.
Closing date for applications: October 1, 1960[2].

e. Six-month Advanced Diploma Course in Economic Planning and Accounting.
REQUIREMENTS FOR ADMISSION: Advanced academic status and/or experience in planning, national accounting and statistics.
NEXT COURSE STARTING: January 1961.
Closing date for applications: October 1, 1960[2].

Technological University at Delft — Netherlands Universities Foundation for International Co-operation

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

COURSE OFFERED:

International Course in Hydraulic Engineering. Three branches of study:
1. Tidal and coastal engineering;
2. Reclamation;
3. Rivers and navigation works.

The course lasts eleven months and leads to a diploma.

REQUIREMENTS FOR ADMISSION: a degree in engineering of a recognized institution of higher learning.

NEXT COURSE STARTING: October 1960 (at Delft).

Technological University at Delft - Netherlands Universities Foundation for International Co-operation

with the assistance of the Organization for European Economic Co-operation, and the World Health Organization.

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

COURSE OFFERED: European Course in Sanitary Engineering; dealing with the struggle with water pollution in densely populated regions.

REQUIREMENTS FOR ADMISSION: A university degree in civil engineering or a related branch of study, and some practical experience in civil engineering.

The numeral clausus for admission has been fixed at 20 participants.

COURSE STARTING: October, 1960.

Netherlands Universities Foundation for International Co-operation

INFORMATION: NUFFIC, 27, Molenstraat, The Hague.

COURSE OFFERED:

1960 NUFFIC International Summer Course in Science – "Present Problems Concerning the Structure and Evolution of the Galactic System", to be held at Nyenrode Castle, near Utrecht, the Netherlands.

REQUIREMENTS FOR ADMISSION: graduate status in astronomy with research experience.

NEXT COURSE: August 12–31, 1960.

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[1] Courses are given in English only, unless otherwise mentioned.

[2] For Indian Citizens application will close one month earlier.

State University at Leyden — Netherlands Universities Foundation For International Co-operation

Information: Netherlands Universities Foundation for International Co-operation, 27, Molenstraat, The Hague.

COURSE OFFERED:

Summer Course of the Combined Netherlands Universities.
Subject: Europe and the Netherlands.
REQUIREMENTS FOR ADMISSION: Students or graduates of an institute of higher education,
NEXT COURSE: July 1960.

Research Institute for Management Science — Netherlands Universities Foundation for International Co-operation

Information: Research Institute for Management Science 76, Nieuwe Laan – Delft.

COURSE OFFERED:

International Course on Small-Scale Industries. Theoretical and practical training in investigating and solving the specific problems of small-scale industries, and in finding a methodology which can be applied to the establishment of new industries. Successful attendance of the course leads to a diploma.
REQUIREMENTS FOR ADMISSION: B.Sc. or M.Sc. in engineering or equivalent degree of recognized universities.

NEXT COURSE: May 1960 until end of October 1960.

International Training Centre for Aerial Survey

Information: The Dean, International Training Centre for Aerial Survey, 3, Kanaalweg, Delft.

COURSES OFFERED:

- *a.* Photogrammetry, including cartography, topography and theory of errors;
- *b.* Photogeology;
- *c.* Use of air photographs for soil survey and other agricultural purposes;
- *d.* The same for forestry and other sylvicultural purposes;
- *e.* Air photography and survey navigation.

  Lectures and instruction are given in English, French or German.

  Courses are adapted to individual needs, and may therefore vary from some months to two years.

  REQUIREMENTS FOR ADMISSION: Dependent upon the individual student's programme of study.

  NEXT COURSE STARTING: September 1960.

Roman Catholic University at Nymegen

Information: Faculty of Theology, 13, Wilhelminasingel, Nymegen.

COURSE OFFERED:

"Theological Week," July, 1960.

Institute of Oriental Studies, Leyden

Information: The Secretary, Institute of Oriental Studies, 61, Rapenburg, Leyden.

COURSES OFFERED:

Language and culture of Indonesia and Malaya, the Arabian Countries, Japan, China.

REQUIREMENTS FOR ADMISSION: Candidates must be qualified for university study in their own country.

NEXT COURSES STARTING: October 1960 (duration 3 or 7 months).

The Hague Academy of International Law

(Founded in 1923 with aid from the Carnegie Endowment).

Information: The Secretariat, The Hague Academy of International Law, Peace Palace, The Hague.

COURSES OFFERED:

- *a.* 31st Summer Session, 1960 (consisting of two periods). Lectures on international law in English and French are given in both periods. At the end of each period students admitted to the course sit for examination, which leads in the case of a pass to the award of a diploma.

  REQUIREMENTS FOR ADMISSION: Study and/or practical experience in international law; university professors and students, civil servants, judges, lawyers, diplomatic, consular and international officers.

  NEXT COURSE: 1st period: July 11–29, 1960; 2nd period: August 1–19, 1960.
- *b.* 4th Session of the Centre of Studies and Research in International Law and International Relations, August 23–October 2. During this session 30 specially selected scholars will be dealing with case-studies in international law.

  Attendants of the course will be divided into an English-speaking and a French-speaking group, each with its own Director of Studies.

  REQUIREMENTS FOR ADMISSION: advanced academic degree, such as the Academy's diploma, or proof of at least three years' actual practice in international affairs.

Netherlands Universities Foundation for International Co-operation

Information: NUFFIC, 27, Molenstraat, The Hague.

COURSE OFFERED:

"Survey of the Netherlands" — introductory courses on the Netherlands, lasting about one week.

REQUIREMENTS FOR ADMISSION: usual requirements for university study.

NEXT COURSE: courses will be given during summer months, upon request, for groups of at least 15 students.

Bouwcentrum (Building Centre)

Information: Bouwcentrum, P.O. Box 299, Rotterdam.

COURSE OFFERED:

International Course on Building – in co-operation with the Central Organization for Applied Scientific Research in the Netherlands, TNO, and the International Federation of Housing and Town Planning. The course is on the graduate level and lasts six months. Its object is to present a systematic basis for the treatment of the problems encountered in the building industry and to suggest a number of practical methods for tackling these problems.

REQUIREMENTS FOR ADMISSION: B.A., B.Sc. or equivalent degree of recognized universities or colleges. Applicants must, in their own countries, have a task concerned with building.

NEXT COURSE STARTING: October 1960.

The Philips International Institute of Technological Studies

Information: Director of Studies, Philips International Institute, Eindhoven.

COURSES OFFERED:

a. Individual, theoretical and experimental curricula on any subject within the range of Philips' activities; for instance, electronics and applications thereof, X-rays, light and lighting, etc.
b. Three-month course of lectures on basic electronics (October–December).
c. Three-month advanced-level course of lectures. The main subject of this course may differ from year to year but will generally be related to some form of applied electronics.

Teaching language is English. Nominal duration of a complete period of study is one year.
REQUIREMENT FOR ADMISSION: a graduate science or engineering degree.

Next courses: In view of the individual character of the study, students may enter upon their course at any date; the courses mentioned will, however, usually start in October and February.

State University at Groningen Audiology Institute

Information: University Hospital, Audiology Institute, Groningen.

COURSE OFFERED: Second course in Paedo-Audiology, 1960.
Subject: the modern educational treatment of the hearing-handicapped child; emphasis on home-training of the very young child.

REQUIREMENTS FOR ADMISSION: Open to speech and hearing therapists, ear specialists, qualified members of the staff of institutes for the deaf and of audiology centres, social workers, and students in this field.

NEXT COURSE: Autumn 1960.

International Agricultural Centre at Wageningen.

Information: Director, International Agricultural Centre, 1, Generaal Foulkesweg, Wageningen.

COURSES OFFERED:

a. Research and specialization facilities in special branches of agricultural science, after completion of which a certificate is awarded. Training is adapted to individual needs and may vary from 3 to 12 months.

   REQUIREMENTS FOR ADMISSION: in general, M. Sc. or equivalent degree of recognized universities or colleges.
b. International meeting on methods and programme planning in agricultural and home economics extension, Wageningen, July 1960. Further details in next issue.
c. International meeting on the organization of plant protection, Wageningen, August 1960. Further details in next issue.

Institute for Atomic Sciences in Agriculture (I.T.A.L.), Wageningen

Information: Dr. D. de Zeeuw, Institute for Atomic Sciences in Agriculture, 32 D, Professor Ritzema Bosweg, Wageningen.

COURSES OFFERED: Four weeks' postgraduate course on uses and applications of radio-isotopes in biology and agriculture.

REQUIREMENTS FOR ADMISSION: advanced academic status in the fields of biology or agricultural science.

NEXT COURSE: February 1–26, 1960.
Some 3 courses will be given each year.

The Netherlands Institute for the History of Art

Information: The Director, Rijksbureau voor Kunsthistorische Documentatie, Korte Vijverberg 7, The Hague.

COURSE OFFERED: Summer Course on Dutch and Flemish Art. Lectures and excursions to the great art centres and other places of interest to art historians.

REQUIREMENTS FOR ADMISSION: Applicants should be students of art history, art historians and those having enjoyed an education in art history. A knowledge of the English and French language is required.

COST OF PARTICIPATION: 350 Dutch guilders (approx. £ 33 or $ 100) including accommodation, meals and excursions.

NEXT COURSE: July 12–August 1, 1960.

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State University at Utrecht
University of Amsterdam
Free (Reformed) University of Amsterdam
Roman Catholic University at Nymegen
Technological University at Delft
Agricultural University at Wageningen
Netherlands School of Economics at Rotterdam
Roman Catholic School of Economics at Tilburg
Technological University at Eindhoven

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